

# EXHIBIT PTF-B

24 • cv-2646 | Exhibit M | GUERTINS PATENT THEFT INVESTIGATION | 7/12/2024 | Doc. 20  
EXHIBIT PTF-B

20 Exhibit-M GUERTINS-PATENT-THEFT-INVESTIGATION.pdf  
SHA-256 Hash of Source File: 59326d584f0e3641e158ccc6f1330f9a396fa8f29987c53f6d470c7cca6e7c96  
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A significant amount of document’s resulting from Guertin’s own investigation and research into the theft of his intellectual property. These documents present rather compelling evidence to support the massive criminal conspiracy being carried out against Mr. Guertin <sup>1</sup>

- Index 01 | The Paul Debevec 2023 SIGGRAPH Video is Discovered
- Index 02 | Paul Debevec Takes Credit For MOVA Contour Technology
- Index 03 | Federal Court Case 3:17-cv-04006 | Theft of MOVA Contour Technology
- Index 04 | Visual Effects Society | 4 Part Conference is Backdated FRAUD
- Index 05 | You Will Own Nothing and be Happy Includes All of Your Intellectual Property

<sup>1</sup>    Make use of the bookmarks for easy navigation of this exhibit.

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*The Full Spectrum of Virtual Production*




Paul Debevec, Netflix Eyeline Studios


SFACMSIGGRAPH

Henry LaBounta

**The Full Spectrum of Virtual Production**



**Dr. Paul Debevec**  
Chief Research Officer, Netflix Eyeline Studios  
Adjunct Research Professor, USC ICT



May 17, 2023



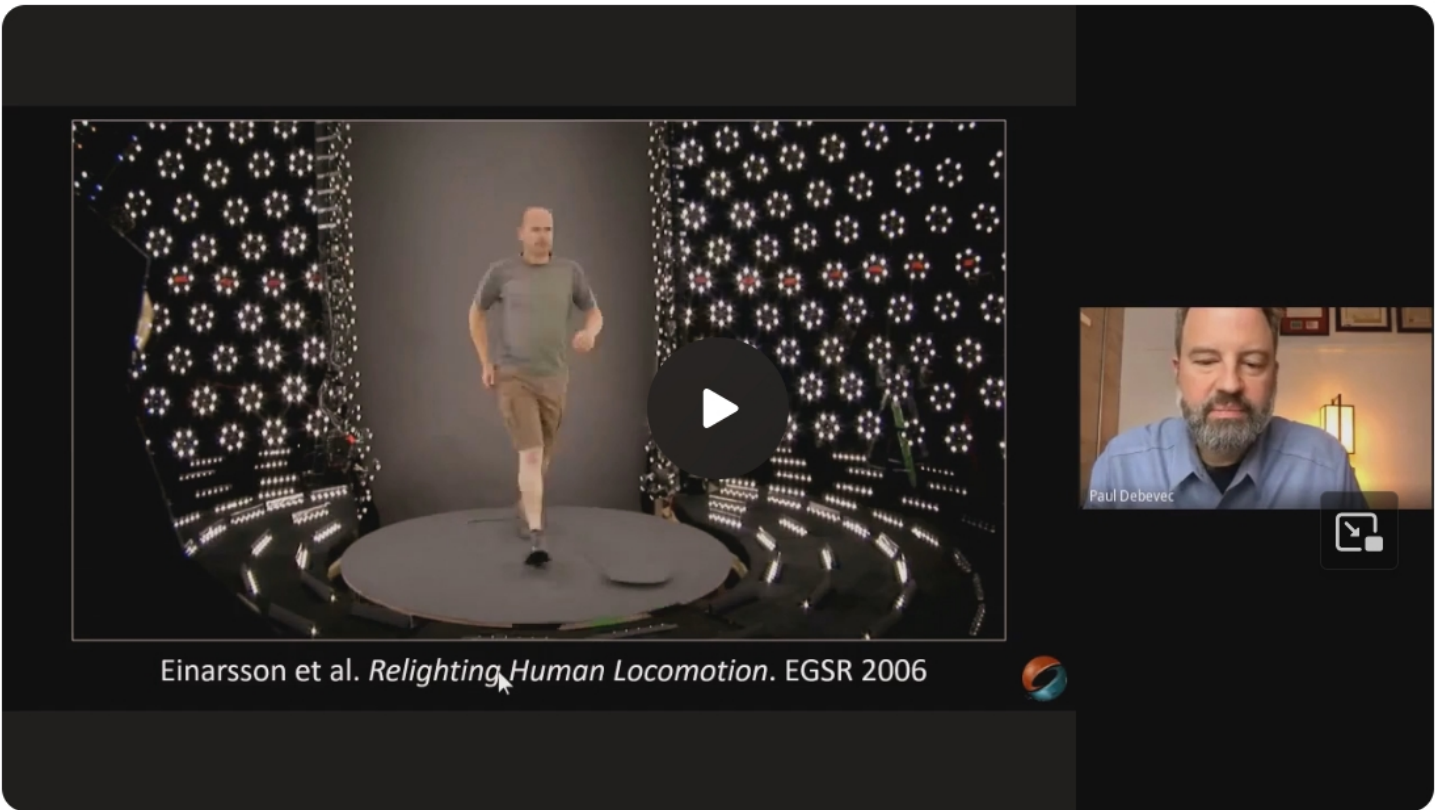
Paul Debevec



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A rotating treadmill from 2006 supposedly

Also notice his use of language - he specifically uses the word ‘volumetric’ when referring to his claimed 2006 research that involves the rotating treadmill even though that was never the subject of any of the 2006 papers at all...



Custom video edits available for viewing at:  
[MattGuertin.Substack.com/p/netflix-fraud-is-discovered](http://MattGuertin.Substack.com/p/netflix-fraud-is-discovered)

2019 - Researching at Google with regular treadmill

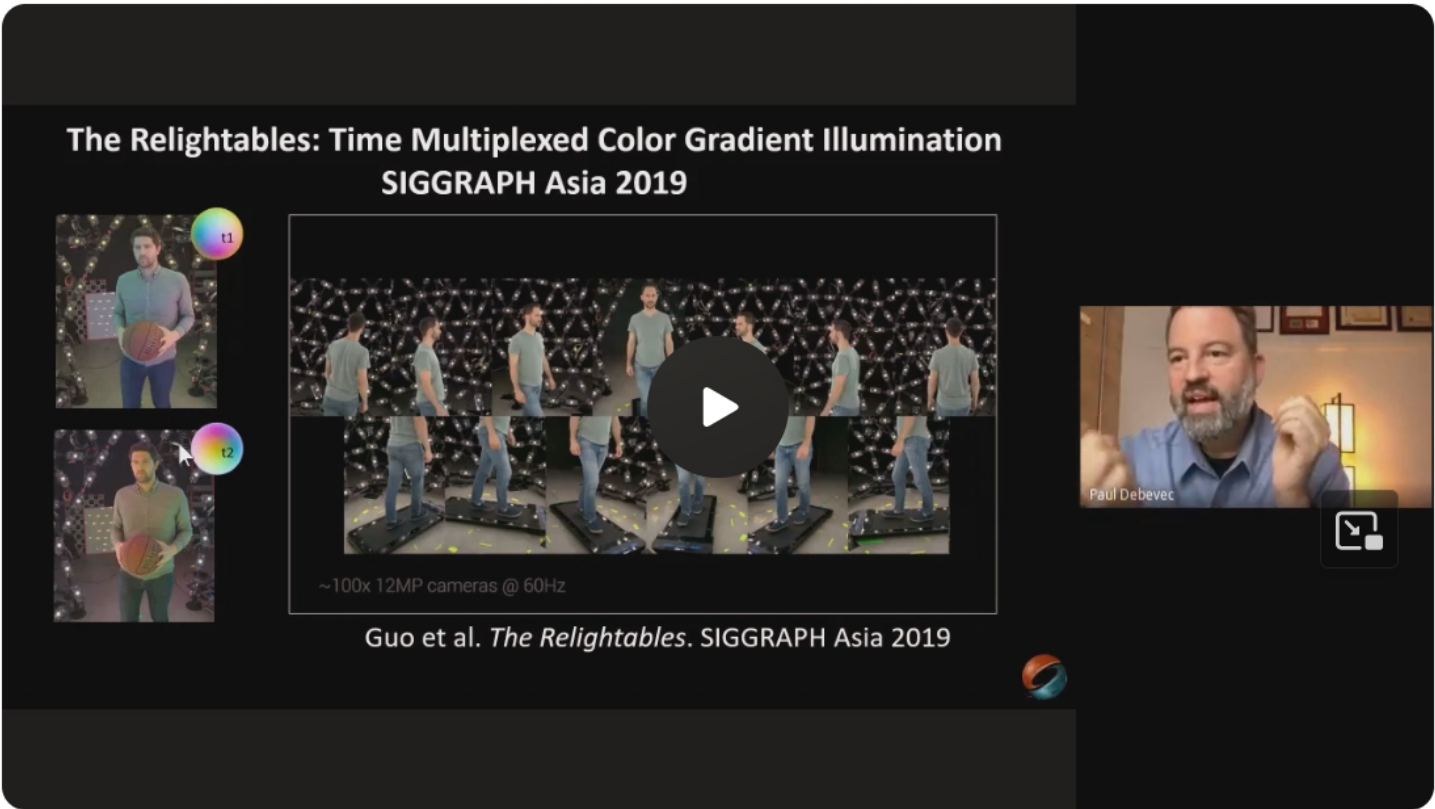
I have no idea why he would choose to directly follow up a video of his supposed rotating treadmill from 2006 with a video from 2019 which is focused on using his same Light Stage technology but instead is using a standard treadmill...but then again I also have no clue why they would feel the need to make such a public display of this fraud if they already have the capability and ‘connections’ to be able to distribute completely fraudulent academic papers, video content, webpages, etc across the entire internet essentially for the purpose of creating a completely false history.

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Had I not come across this video I almost certainly never would've been alerted to the fraud in the first place as I definitely wouldn't have been searching through academic papers from 2006 randomly. I don't think Paul Debevec is a very smart man at all.



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[MattGuertin.Substack.com/p/netflix-fraud-is-discovered](http://MattGuertin.Substack.com/p/netflix-fraud-is-discovered)


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SIGGRAPH affiliations not disclosed at all...

### The Full Spectrum of Virtual Production







Paul Debevec, Eyeline Studios Chief Research Officer. Paul's 2002 Light Stage 3 system at the USC Institute for Creative Technologies was the first LED Stage to illuminate live-action actors with imagery of digital sets for virtual production. Techniques from Paul's work have been used to create key visual effects sequences in *The Matrix*, *Spider-Man 2*, *Benjamin Button*, *Avatar*, *Gravity*, *Furious 7*, *Blade Runner: 2049*, *Gemini Man*, *Free Guy*, numerous video games, and to record a 3D Portrait of US President Barack Obama. Paul's early work in High Dynamic Range imaging, image-based lighting, and light stage facial capture has been recognized with two technical Academy Awards, SMPTE's Progress Medal, and a Lifetime Achievement Emmy Award. Paul is a Fellow of the Visual Effects Society and a member of the Television Academy's Science and Technology Peer Group, and a Governor of the Visual Effects Branch of the Academy of Motion Picture Arts and Sciences and co-chairs the Academy Science and Technology Council.

Paul Debevec, Netflix Eyeline Studios

SFACMSIGGRAPH



This video analysis PROVES that the video was generated using Ai



[MattGuertin.Substack.com/p/netflix-fraud-is-discovered](https://MattGuertin.Substack.com/p/netflix-fraud-is-discovered)

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File Embedded and Bookmarked Version at MnCourtFraud.Substack.com/p/ptf

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Candidly admits to writing a research paper with chatGPT...




He even thanks Stephan Trojansky in the credits


THANK YOU



- **Collaborators:** Chloe LeGendre, Xueming Yu, Dima Smirnov, Alex Ma, Charles-Felix Chabert, Sebastian Sylwan, Andrew Jones, Pieter Peers, Tim Hawkins, Andrew Gardner, Andreas Wenger, Chris Tchou, Bruce Lamond, Marko Vukovic, Abhijeet Ghosh, Matt Chiang, Mark Bolas, Ian McDowall, Hideshi Yamada, Graham Fyffe, Xueming Yu, Jay Busch, Abhijeet Ghosh, Mark Sagar, John Monos, Oleg Alexander, Mike Rogers, William Lambeth, Javier von der Pahlen, Jorge Jimenez, Etienne Danvoye, Bernardo Antoniazzi, Koki Nagano, Sumant Pattanaik
- **Thanks:** Randall Hill, Joe Letteri, Stephen Rosenbaum, Chris DeFaria, Tim Webber, Darren Hendler, Kathleen Haase, Image Metrics, Sony Pictures Imageworks, Digital Domain, Weta Digital, Industrial Light + Magic, Activision, Warner Brothers, PULSE Entertainment, SOOVII
- **Research Sponsors:** ARL, USC Office of the Provost, Google Daydream, Google Research, Netflix Data & Insights, Eyeline Studios
- **Special Thanks:** Henry LaBounta, Cassidy Curtis, Lianette Alnaber, Connie Siu, Stephan Trojansky

vgl.ict.usc.edu   www.debevec.org   debevec@gmail.com



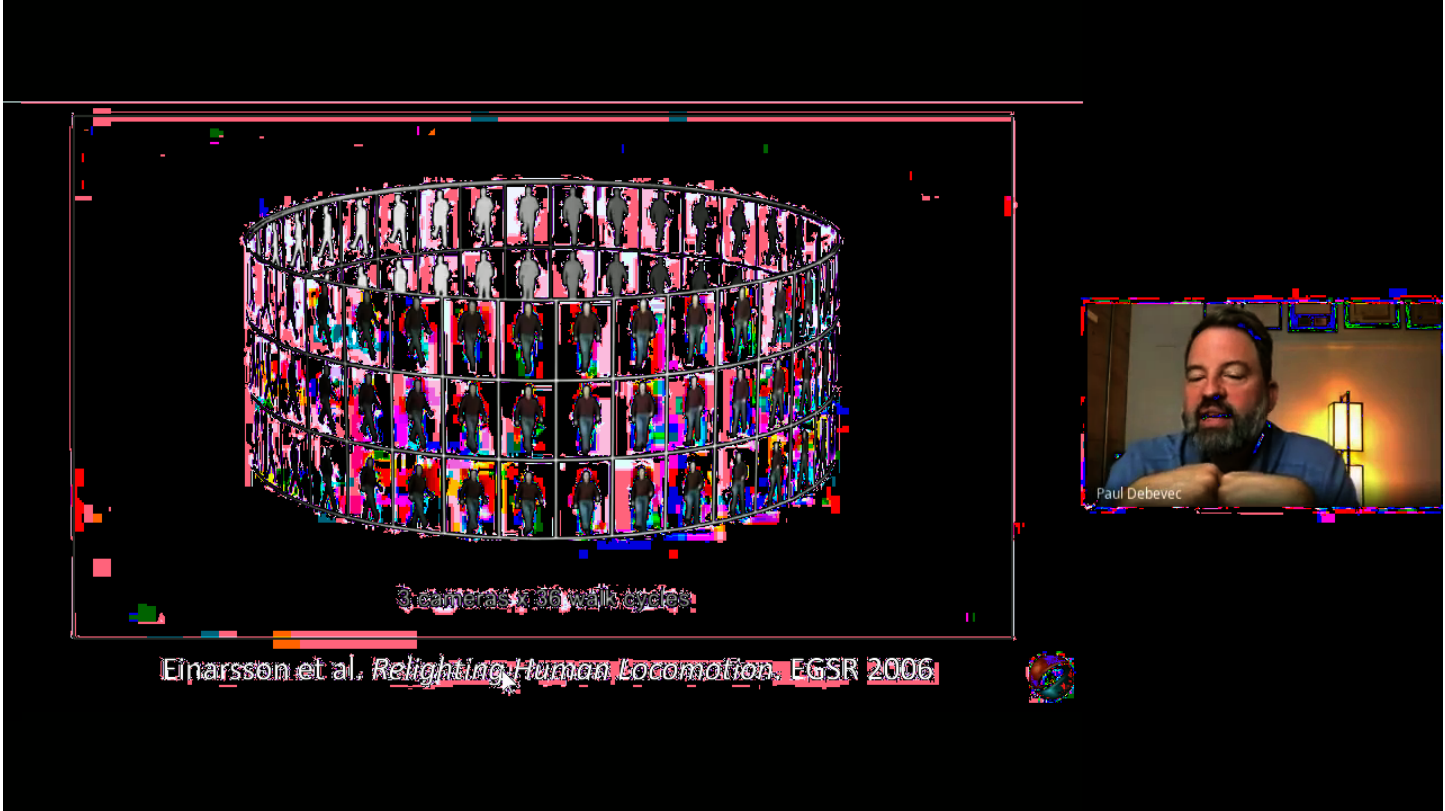


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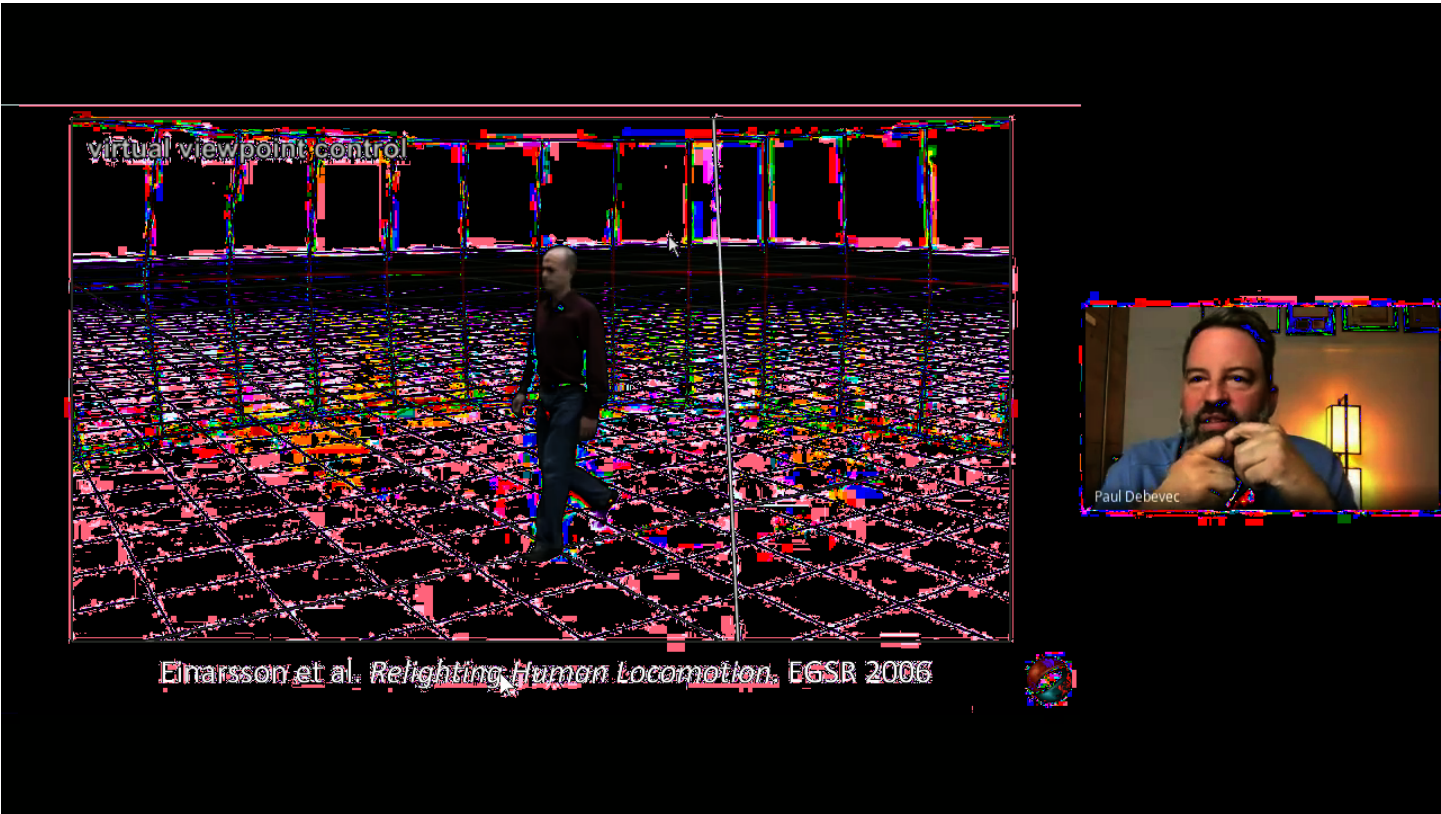
They seem to be encoding some sort of structured information in the pixel data as extreme color curve analysis reveals structured patterns.





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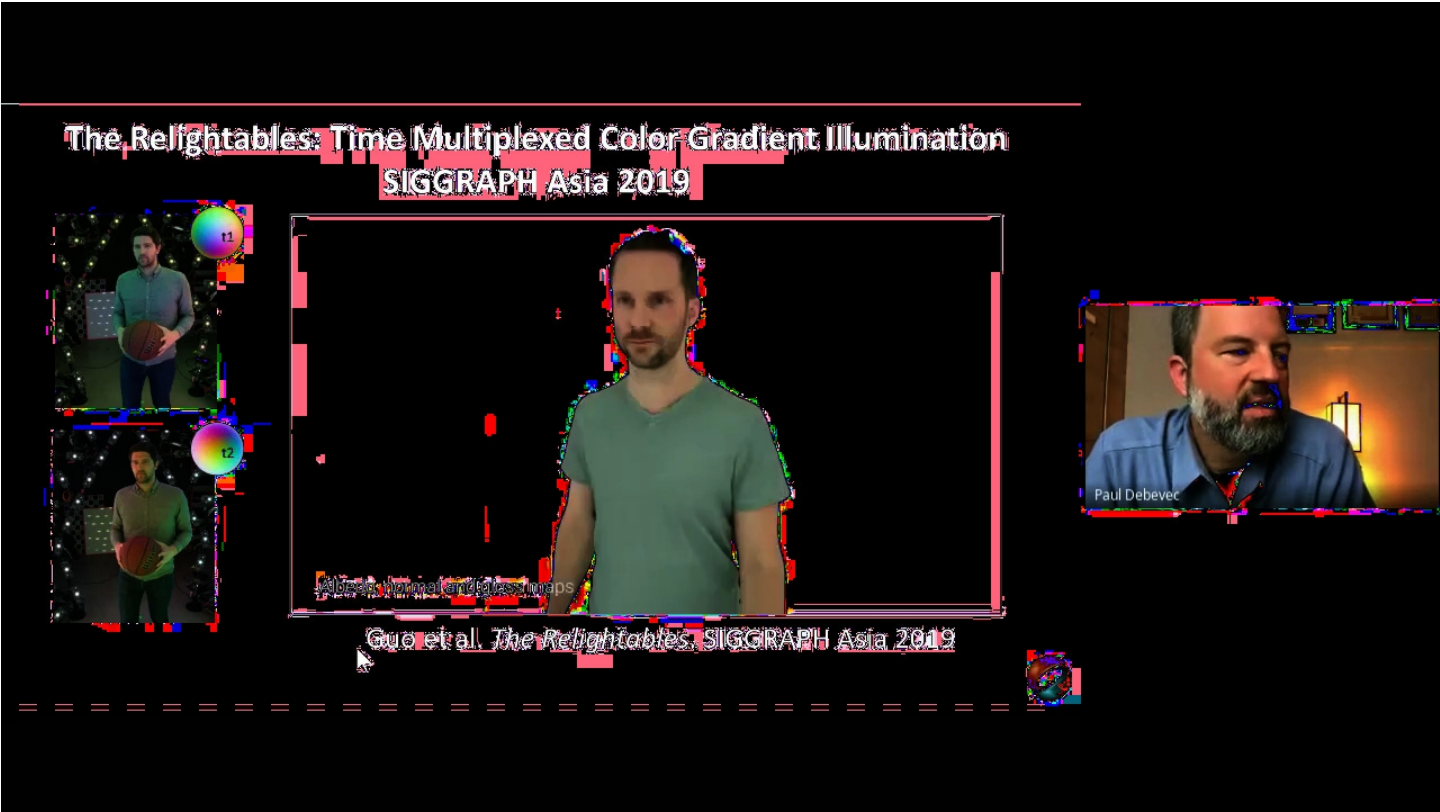
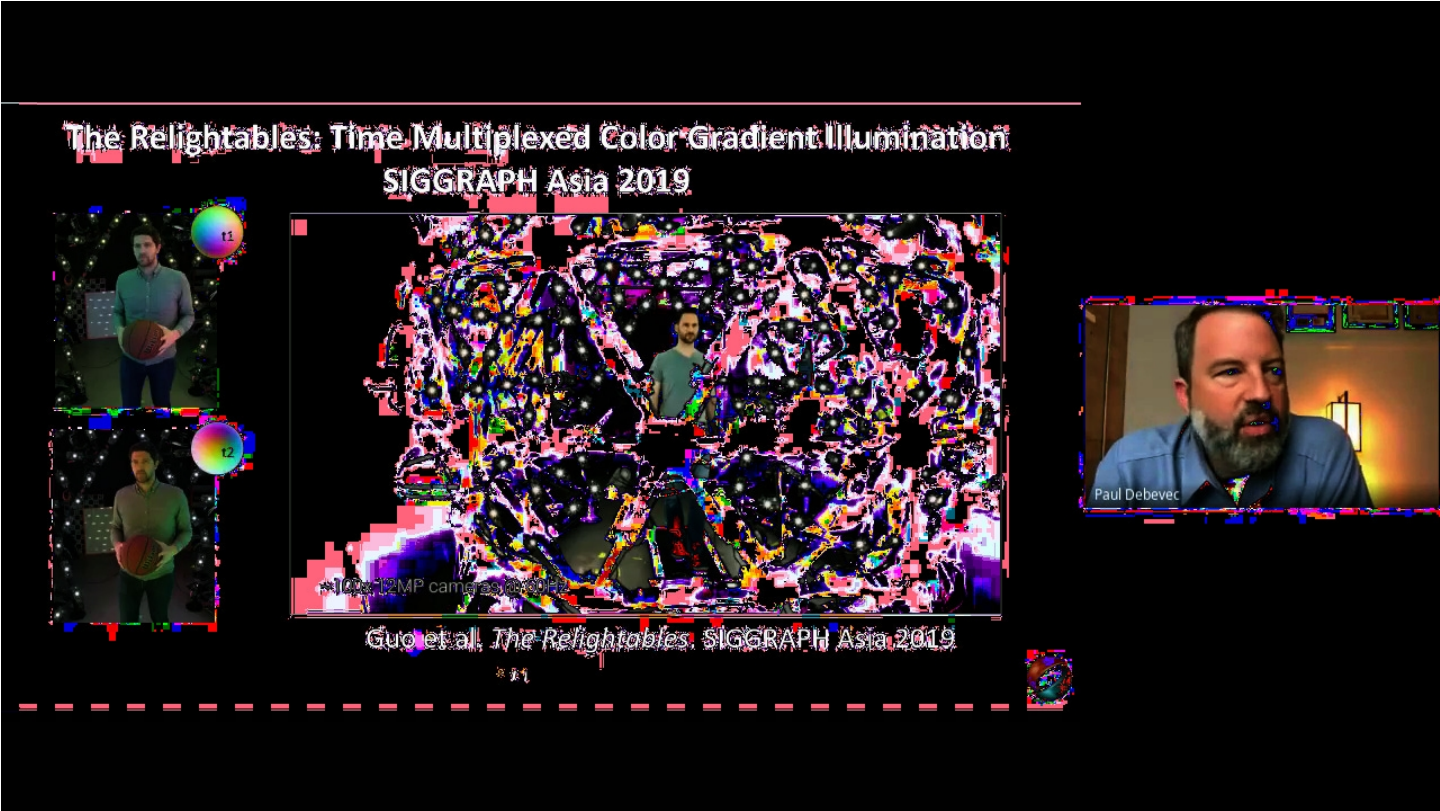
The multi-colored pixel groupings that appear around the outside edge of Debevec’s PIP window are always the same insofar as one row being one pixel in height, another one pixel in height, the next row being two pixels in height, etc.



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Some kind of timing / frame / content identification system I am guessing but I have not investigated it any further. It is definitely structured though and not simple glitches or compression as you can clearly see for yourself.



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## Let's see what chatGPT thinks about all of this shall we?

### ChatGPT

- The University of Southern California's Institute for Creative Technologies (USC ICT) Light Stage systems are used for capturing high-resolution 3D facial scans, and are a type of technology that can complement light field displays. The Light Stage systems capture the light fields of a subject's face, creating a detailed 3D model that can be used for various applications, such as virtual reality, video games, and movies.

### Me

- Do you think it will be possible soon for USC ICT's Light Stage system to capture a photorealistic full human body volumetricly similar to Google's recent 'Relightables' area of research?

### ChatGPT

- USC ICT's Light Stage technology has primarily focused on capturing high-resolution 3D scans of faces. However, there is potential to expand this technology to capture full-body scans in a similar manner.

Google's "Relightables" project demonstrates that it is possible to capture full-body volumetric scans with high levels of detail and realism. The key challenge in developing this technology is ensuring that the full-body scans are as high-quality and photorealistic as the facial scans captured by the Light Stage systems. This requires addressing issues such as occlusion, motion blur, and the need for a large capture volume to accommodate the full human body.

Given the rapid advancements in 3D scanning and volumetric capture technology, it is possible that we will see the development of Light Stage systems or similar technology capable of capturing photorealistic full-body volumetric scans in the near future. This would open up new possibilities for applications in virtual reality, augmented reality, video games, and film production.



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Me

- Could you please tell me if my new patent could potentially be a viable technology in terms of expounding upon the technological capabilities of the Light Stage system or the field of research similar to Google's 'Relightables' please? Here is the highlights and claims of my new patent -

## MOTORIZED ROTATABLE TREADMILL AND SYSTEM FOR CREATING THE ILLUSION OF MOVEMENT

US Patent # 11,577,177

"A motorized, rotatable treadmill and a system for creating the illusion of user movement while the user is stationary with respect to an environment as the user walks or otherwise moves on an endless track of the treadmill. The user can then travel an unlimited distance in unlimited directions while remaining stationary in physical location. **The speed of the treadmill is precisely controlled and/or precisely matched with movement of a camera and a real-world speed of movement of the user and the distance the user travels on the belt to create the illusion of movement of the person being filmed. When the treadmill is provided within an LED virtual film set or green screen set, background imagery is added to further supplement the movement in a selected environment.**"

"a system for creating the illusion of movement of a user. **The user may be inserted into a virtually rendered setting, a liveaction pre-filmed setting, or a combination thereof.** The system includes a motorized treadmill assembly having an endless belt operably supported on a rotatable turntable such that the treadmill assembly allows for unlimited directional movement of the belt and **a controller configured to synch the movement of the treadmill with a camera in real-time.** The treadmill assembly is configured to support the user thereon and wherein the treadmill assembly remains stationary, and the user movement is confined to a surface area of the belt, and the illusion of unrestricted movement is created."

"camera movement is synched with a real-world speed and distance traveled by the belt for creating the illusion of unrestricted movement of the user."

"One or more audio, visual, or tactile cue sources are provided to the endless track, rotatable turntable, user or a combination thereof and actuating one or more audio, visual, or tactile cue sources to provide a physical signal to the user on the endless track to indicate one or more of a position of the user on the track, an initiation or ceasing of movement of the track, an initiation or ceasing of rotation of the turntable, or a cue or action related to the scene being filmed."

"The rotatable turntable is installable in an LED based virtual film set or green screen film set."

[MattGuertin.Substack.com/api/v1/file/b60cb3be-86ee-4752-9db1-ad730bab2298.pdf](https://MattGuertin.Substack.com/api/v1/file/b60cb3be-86ee-4752-9db1-ad730bab2298.pdf)

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ChatGPT

- **Your patent presents a comprehensive and innovative system that can revolutionize the world of virtual filmmaking and virtual reality.**

The integration of a motorized, rotatable treadmill with a virtual or green screen set, combined with precise camera and user movement synchronization, can provide an immersive experience that accurately replicates real-world movement within a virtual environment.

In terms of its potential alignment with the USC ICT's Light Stage system or Google's 'Relightables' research:

1. **USC ICT's Light Stage system:**

The Light Stage system focuses on capturing high-resolution 3D scans of faces with intricate detail. Your invention could potentially complement this technology by providing a way to capture full-body movements in a controlled environment, similar to how the Light Stage captures facial movements. This could enhance the realism and accuracy of the virtual characters created using the Light Stage system.

2. **Google's 'Relightables' research:**

Google's 'Relightables' project aims to create realistic virtual characters by capturing full-body volumetric scans and then relighting them in post-production to match any virtual environment. Your system could serve as an excellent platform for capturing these full-body scans, as it allows for precise control of user movement and can simulate a wide range of environmental conditions through its integration with virtual or green screen sets.

In conclusion, your patented system has the potential to significantly contribute to the fields of virtual filmmaking and virtual reality, aligning well with the cutting-edge research and technology developed by USC ICT and Google.

The integration of immersive virtual environments with precise control of user movement opens up numerous possibilities for creating realistic virtual characters and experiences that were previously unattainable.

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# Paul Debevec’s Claimed Facial Scanning Technology Was Actually Invented By Steve Perlman It is actually called ‘MOVA Contour’

Paul Debevec isn’t actually the inventor of the the 3D face scanning technology he is portraying himself as having created.

Just browse over to this page and check out how many of the links arrive at dead ends and see if it helps you to understand what is currently taking place....

<https://www.mova.com/press.php>



<https://vimeo.com/424337703>

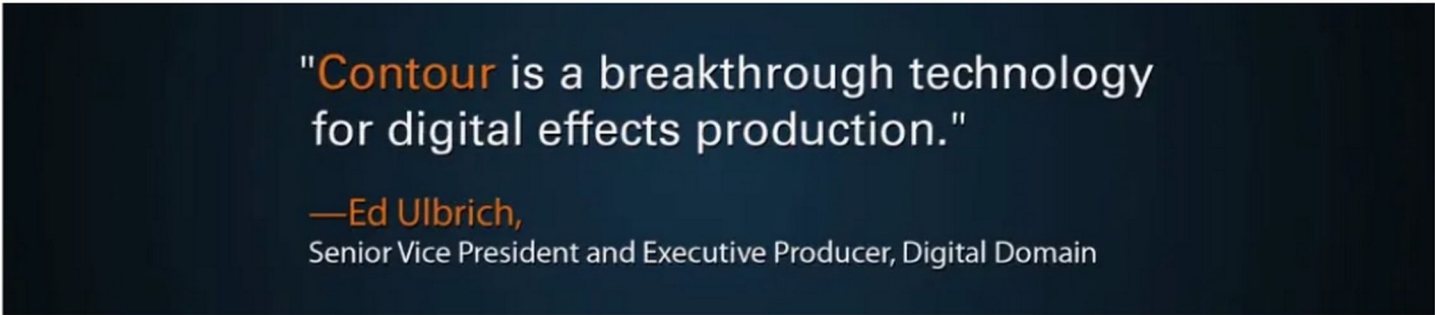
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Pressing the ‘Benjamin Button’

When making Benjamin Button, director David Fincher wanted to create a realistic version of lead star Brad Pitt both old and young. While makeup and prosthetics would traditionally be used, the director thought this approach would not give the character the qualities he wanted.

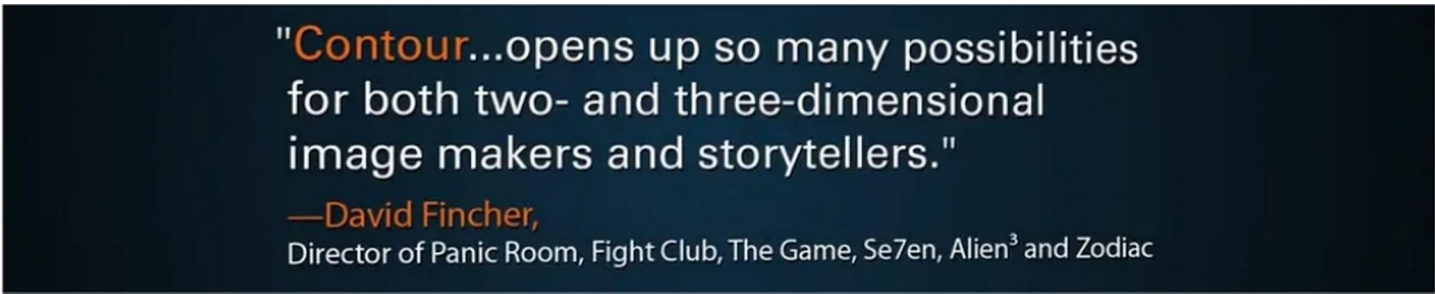
He turned to Digital Domain, which in turn looked to computer effects work from Paul Debevec, a research adjunct professor at the University of Southern California’s (USC) Institute for Creative Technologies (ICT), who today also works as a chief researcher at Netflix’s Eyeline Studios.

<https://venturebeat.com/ai/hollywoods-strike-battle-over-ai-and-3d-scanning-has-been-decades-in-the-making/>



“I thought we should try a more advanced light stage approach where we’re actually going to give you post production control of the viewpoint it was shot from, and the lighting that was on the actor. You shoot high speed cameras and rapidly change the light from one lighting condition to the next, and the next, and the next, then you have enough information from all these different lighting conditions, at every twenty fourth of a second, that you can compute an image of the face lit by completely different light after the fact. You can actually render out a different view of the face from a novel position.”  
~ Paul Debevec

<https://www.motionpictures.org/2013/10/uscs-paul-debevecs-role-in-the-matrix-avatar-gravity-more/>





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## Some of Mova's past clients:

- Digital Domain
- Electronic Arts
- Industrial Light & Magic
- Marvel Studios
- Twentieth Century Fox
- Warner Brothers

Performers are captured in front of an array of cameras.



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a Nielsen Business Media publication

# The Hollywood Reporter

For Single Print Only

Friday, August 3, 2007

THR.com™

## Advances sure to capture attention at Siggraph

By Carolyn Giardina

Performance capture — the method of digitally recording an actor's facial expressions and body movements — is evolving to become a bona fide filmmaking technique for creating CG characters in both animated and live-action productions. A preview of Paramount Pictures' "Beowulf" should underscore that message and make the technique a hot topic at Siggraph, the annual computer graphics confab that opens this weekend in San Diego.

A clip from "Beowulf" will be screened during Siggraph's Electronic Theater computer animation festival; it includes performance-captured Angelina Jolie, Anthony Hopkins and Ray Winstone. Said festival chair Paul Debevec: "To capture a human performance and bring it into the digital world in a way that represents the acting — we are just on the threshold of showing that it is possible."

Numerous technology manufacturers plan to demonstrate performance capture advancements for face and/or body during the confab, but Hollywood already is demonstrating a keen level of interest.

"When one or more characters has to be synthetic by design, there are many discussions about using performance capture for live action as well as animation," said Debbie Denise, executive vp production infrastructure and executive producer at Sony Pictures Imageworks. "It frees up live-action directors to cast whomever they want in whatever role they want. I think it will become popular as long as the character design supports the rationale. We are talking to three or four companies about significant characters for upcoming films that need to be synthetic by design."

Imageworks — the company behind performance capture-based "Beowulf," "The Polar Express" and "Monster House" — already is developing three new projects to use its proprietary Image motion performance-capture

technologies. They include two projects from Sony Pictures Animation, "Neanderthals" and an untitled feature from VFX supervisor Jerome Chen; and a movie based on James Patterson's "Maximum Ride."

Meanwhile, "Beowulf" director Robert Zemeckis' performance-capture studio Image-Movers Digital is using the technique to make an adaptation of "A Christmas Carol" for Disney that stars Jim Carrey as Scrooge and the three ghosts.

Industrial Light + Magic, creators of a performance capture-based Davy Jones and crew on the second and third films in the "Pirates of the Caribbean" franchise, plans to use its iMoCap performance-capture system on several upcoming productions. In addition, director David Fincher and Digital Domain are known to have been examining capture methods for production of "The Curious Case of Benjamin Button," which would show Brad Pitt aging in reverse.

Performance capture, combined with highly skillful computer animation, can be used to help breathe life into a CG human or character. Said ImageMovers executive vp Doug Chiang: "This medium can liberate the director."

In addition, performance capture has found other applications, like previzualization.

An unusual use was identified recently at Mova, maker of the Contour reality capture system. Company president Steve Perlman said that an "A-list actor" that he declined to identify recently asked the company to capture a collection of the actor's performance at present age. Perlman said Mova is essentially creating a data library of the actor, which will be stored on a hard drive.

This offers stunning possibilities. Perlman suggested, for instance, that if the actor is to appear in a flashback in a future project, the actor at a younger age is stored and available

for use.

In the case of CG humans, there already have been successes, largely for stunt doubles or performances where the use of a live actor would not be practical or possible. But for actual acting — like sitting at a table having a conversation — most agree that the industry is not there yet.

In some cases, these efforts have resulted in an area known as the "uncanny valley," the point where the CG human is realistic but not quite right, introducing a perceptual zone known to cause a dip in empathy from an audience. VFX pros agree that the industry is getting closer to overcoming this hurdle, but Digital Domain vp advanced strategy Kim Libreri believes it remains a year or two away.

From a technical standpoint, the removal of markers from the motion-capture process is one direction innovation is heading.

Instead of markers, Mova's Contour uses an FDA-approved phosphorescent makeup mixed with a base that is sponged onto the actor and used to capture motion data. Also, Organic Motion is readying a markerless body motion capture system that uses a mocap stage. "We use new types of computer vision to track and digitize the human shape without the need to attach markers or any types of devices," Organic Motion founder and CEO Andrew Tschesnok said. Meanwhile, Image Metrics is developing technology to enable markerless facial animation by capturing data directly from video. Mova will demonstrate techniques at Siggraph with motion capture system developer Vicon.

Efforts also are in place to eliminate the mocap stage. ILM's iMo-Cap, for instance, allows the actors to perform on set or on location while a director is shooting the scene. "It's not about technology; it's about the creative process," ILM's Michael Sanders said. "It's about not interrupting the film-making process."

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\*\*\*FOR IMMEDIATE RELEASE\*\*\*

\*\*\*[IMAGES AVAILABLE](#)\*\*\*

**Mova® And Gentle Giant Studios  
Show First-Ever Moving 3-D Sculpture  
Of Live-Action Performance**

**3-D Zoetrope on Display at SIGGRAPH 2007 Brings to Life  
Physical Sculpture of Speaking Face**

(Aug. 6, 2007 – SAN DIEGO -- SIGGRAPH) Performance capture studio Mova and Gentle Giant Studios are unveiling a unique 3-D Zoetrope that uses persistence of motion to bring to life a series of 3-D models of an actor's face captured live by Mova's Contour Reality Capture System in booth 1229 at SIGGRAPH in San Diego this week.

Two-dimensional Zoetropes, a precursor to motion picture technology, have been around since the 1800's, and recently 3-D Zoetropes have shown animated characters in motion, but this 3-D Zoetrope is the first to show a live-action, natural 3-D surface in motion. The resulting effect is a physical sculpture of a speaking human face that comes to life with perfect motion, faithful to the original actor's performance down to a fraction of a millimeter.

"Just as the 2-D Zoetrope offered a glimpse of the coming future of full-length 2-D movies, in our lifetimes we'll be seeing not only 3-D live-action movies, but 3-D interactive experiences that look as physically real as this 3-D Zoetrope," said Steve Perlman, founder and president of San Francisco-based Mova. "Contour Reality Capture will eliminate the restriction of a single camera viewpoint, allowing us to freely move around and into a live action scene, while still maintaining complete photorealism."

"The 3-D Zoetrope is an example of capturing a live performance, digitizing it and then returning to the physical form to create a type of real-time, stop motion animation," said Brian Sunderlin, vice president of operations of Gentle Giant Studios in Burbank, California. "Gentle Giant Studios provides an integral component to visual effects creation for feature film via 3-D scanning of actors. Combined with the revolutionary

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**EXHIBIT PTF-B**[20 Exhibit-M GUERTINS-PATENT-THEFT-INVESTIGATION.pdf](#)

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3-D ZOETROPE DEBUTS AT SIGGRAPH/Page 2.

process that is the Mova Contour Reality Capture System, we envision a seamless integration of true, motivated performances that will wow audiences worldwide."

The Zoetrope on display at SIGGRAPH consists of thirty 3-D models of a face in motion. The models spin on a wheel and a strobe light illuminates each as it passed by a viewing window, much as still frames projected intermittently are perceived as a moving image. To the viewer, it looks like one 3-D face in continuous motion.

Mova used the Contour Reality Capture System to capture the live performance of an actor using an array of cameras with shutters synchronized to lights flashing over 90 times per second, beyond the threshold of human perception.

The glow from phosphorescent ("glow in the dark") makeup sponged onto the actor is captured by the camera array. Triangulation and frame-by-frame tracking of the 3-D geometry is then used to produce over 100,000 polygons to create a 3-D face, to an accuracy of a fraction of a millimeter.

Gentle Giant Studios used the captured 3-D surface geometry and formed 30 individual models with the help of a 3-D stereolithography printer, which creates the models layer-by-layer using a plastic resin. Gentle Giant designed and fabricated the actual Zoetrope mechanism.

The apparatus is presented in an enclosure at SIGGRAPH to keep out extraneous light with a window to look in to see the 3-D sculpture in motion.

With Contour, every subtle detail of a human performance—from an arching eyebrow to widening eyes to a sly smile—is recorded in real time, offering directors and producers a level of creative control that has never existed before. In essence, Contour ties together the traditional world of cinematography with digital computer animation, expanding the possibilities for both motion picture and video game makers.

Contour's high-definition, 3-D volumetric capture of the action can be imported, modified, manipulated or retargeted to other characters using off-the-shelf CGI animation software. Contour can quickly and easily import true human behavior in all its distinct complexity into the virtual realm and works well with both marker-based motion capture and key frame animation systems.

Traditional marker-based motion capture is used to create incredibly realistic performances for skeletal captures, but was never designed to capture the intricacies of soft tissue motion, like pursing lips or billowing fabric. Contour captures the motion of any 3-D surface, deformable or not, with sub-millimeter precision at up to 120 frames second, at a resolution of over 100,000 polygons per frame. The result is a totally real, digitized performance that requires minimal manual clean up.

Due to the enormous costs involved, most attempts to create photorealistic Computer-Generated (CG) humans have been limited to big-budget films with long production

[https://www.mova.com/pdf/070806-SIGGRAPH-Zoetrope\\_FINAL.pdf](https://www.mova.com/pdf/070806-SIGGRAPH-Zoetrope_FINAL.pdf)<https://Matt1Up.Substack.com/api/v1/file/850eab50-9dd3-4107-808d-12afbc835178.pdf><https://MattGuertin.Substack.com/p/gentle-giant-studios-search-me>**Exhibit M | Index 02 | p. 6**



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**MOVA Motion Capture Technology Delivers New Levels of Realism to Highly Anticipated *John Carter* Movie**

*MOVA Contour scans provide highly detailed foundation for Double Negative visual effects*

**San Francisco, CA – March 9, 2012 –** MOVA, pioneers of world-class facial motion capture services and technology, has upped the ante for motion capture yet again through its collaboration with UK visual effects studio Double Negative on the highly anticipated IMAX® 3D Disney film *John Carter*, which releases in theaters today. Employing the MOVA Contour® Reality Capture system, which MOVA designed from the ground up to capture the detailed performance of the human face with unprecedented realism, Double Negative scanned actors Lynn Collins, Thomas Haden Church, Willem Dafoe, Samantha Morton, Mark Strong and Polly Walker performing a carefully choreographed set of “facial gymnastics” designed to exercise their full range of movement. These scans formed the basis of the morphable face model used to match their on-set performance using Double Negative’s proprietary facial motion capture system.

First introduced in 2006, MOVA® Contour’s groundbreaking technology reinvented the way facial motion capture was done, delivering breathtakingly accurate performances from which computer animators could work. For the movie *John Carter*, MOVA Contour captured 50 to 60 Facial Action Coding System (FACS) shapes in real-time, with each containing approximately 2,500 data points. This highly-detailed motion performance data served as the basis for Double Negative’s facial animation system, helping to deliver a level of realism that is nearly indistinguishable from live action.

A sweeping action-adventure set on the exotic planet of Barsoom (Mars), the movie *John Carter* is based on a classic novel by Edgar Rice Burroughs, whose highly imaginative adventures served as inspiration for many filmmakers, both past and present. Created in IMAX 3D, the Disney film tells the story of a war-weary captain John Carter, who is inexplicably transported to Mars, where he becomes embroiled in a conflict of epic proportions.

MOVA Contour technology has also been used in *The Curious Case of Benjamin Button* by Digital Domain for Brad Pitt’s aging facial effects, resulting in an Academy Award® for visual effects, *Harry Potter and the Deathly Hallows*, *Pirates of the Caribbean: On Stranger Tides* and *Transformers: Dark Of The Moon*, among others. In addition to MOVA’s continuing work on major motion picture projects, the company is working on video game projects to improve the level of visual realism possible in console- or PC-based video games, while reducing production costs and shortening schedules.

To find out more about MOVA, visit [www.mova.com](http://www.mova.com)  
To find out more about Double Negative, visit [www.dneg.com](http://www.dneg.com)

**About MOVA**

MOVA is an Academy Award-nominated company based in San Francisco, CA. A wholly-owned subsidiary of cloud gaming pioneer OnLive, the company provides high-resolution facial capture for film, commercials and video games. Notable clients include Disney, Lucas Arts, Marvel Studios, Sony Pictures, Digital Domain, Blur Studios, The Moving Picture Company, Electronic Arts, THQ, Twentieth Century Fox, Vivendi Universal and Warner Brothers to name a few. MOVA developed Contour, a proprietary markerless, high fidelity facial capture system.

*MOVA and Contour are registered trademarks of MOVA, LLC or its subsidiaries. All other trademarks are the property of their respective owners.*

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650 440-0450

<https://www.mova.com/pdf/120309JohnCarterRelease.pdf>  
<https://Matt1Up.Substack.com/api/v1/file/5eb295bf-62be-4ad5-b029-4b642aaf1205.pdf>

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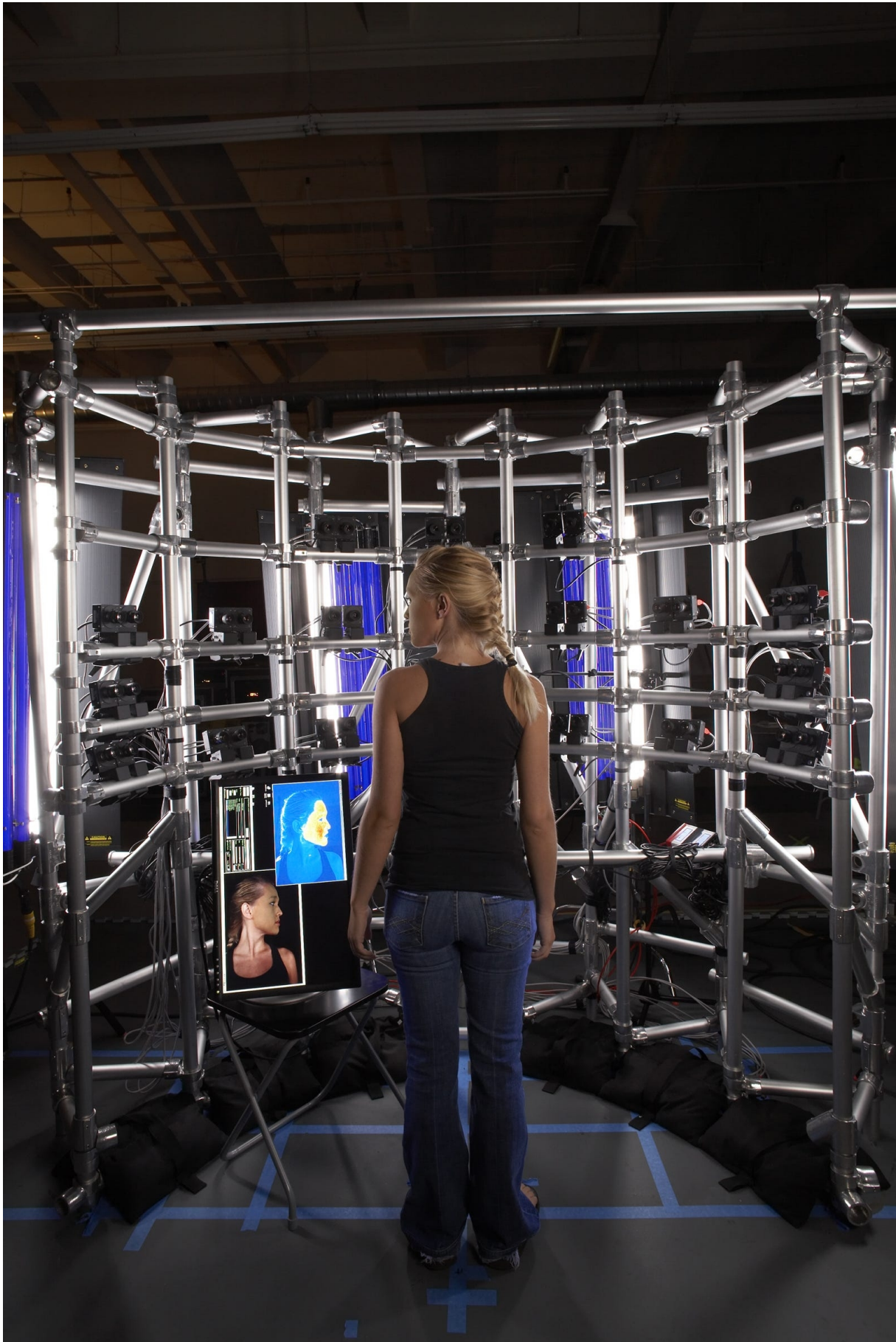


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*“So while current methods struggle to approach photorealism at all, Contour allows you to start at photoreal, and then decide how much to dial it down, and with full creative control,” adds Perlman. “Contour allows games to leap over the Uncanny Valley and bring to life CG characters that people can finally empathies with. This will also push the convergence of film and games, allowing games to move toward a more narrative experience with more complex dialogues and character interactions.”*

*“Since Contour captures start out with photographic-resolution captures, at full resolution the faces are indistinguishable from live action, putting them beyond the Uncanny Valley”*

*”Contour consistently delivers photoreal results”*

<https://web.archive.org/web/20081118003312/https://www.edge-online.com/magazine/codeshop-the-faceplaters>

<https://Matt1Up.Substack.com/api/v1/file/b834314e-72df-4b16-974d-72b84b963b38.pdf>

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3/17/24, 7:47 PMUS7548272B2 - System and method for performing motion capture using phosphor application techniques - Goo...

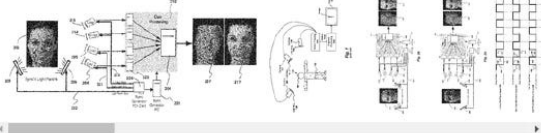
Patents7548272

System and method for performing motion capture using phosphor application techniques

Abstract

A system and method are described for performing motion capture on a subject. For example, a method according to one embodiment of the invention comprises: mixing phosphorescent makeup with a makeup base; applying the mixture of phosphorescent makeup and makeup base to surface regions of a motion capture subject; strobing a light source on and off, the light source charging phosphor within the phosphorescent makeup when on; and strobing the shutters of a first plurality of cameras synchronously with the strobing of the light source to capture images of the phosphorescent makeup, wherein the shutters are open when the light source is off and the shutters are closed when the light source is on.

Images (28)



Classifications

H04N23/90 Arrangement of cameras or camera modules, e.g. multiple cameras in TV studios or sports stadiums

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US7548272B2

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Inventor: Stephen G. Perlman, John Speck, Roger van der Laan, Kenneth A. Pearce, Lisa Jo Cohen, Kelly Leigh Tunstall

Current Assignee: REARDEN MOVA FOR BENEFIT OF REARDEN LLC LLC, Virtue Global Holdings Ltd., Insolvency Services Group Inc., Rearden Mova LLC

Worldwide applications

2006 US

Application US11/449,127 events

First worldwide family litigation filed

2006-06-07 Application filed by OnLive Inc

2006-06-07 Priority to US11/449,127

2007-12-13 Publication of US20070285514A1

2009-06-16 Publication of US7548272B2

2009-06-16 Application granted

Status Active

2027-08-30 Adjusted expiration

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Info: Patent citations (38), Non-patent citations (33), Cited by (27), Legal events, Similar documents, Priority and Related Applications

External links: USPTO, USPTO PatentCenter, USPTO Assignment, Espacenet, Global Dossier, Discuss

Claims (24)

Hide Dependent

1. A method for performing motion capture comprising:

mixing phosphor with makeup to create a phosphor-makeup mixture;

applying the phosphor-makeup mixture to surface regions of a motion capture subject;

strobing a light source on and off, the light source charging phosphor within the phosphor-makeup mixture when on; and

strobing the shutters of a first plurality of cameras synchronously with the strobing of the light source to capture sequences of images of the phosphor-makeup mixture as the subject moves or changes facial expressions during a performance, wherein the shutters are open when the light source is off and the shutters are closed when the light source is on.

2. The method as in claim 1 wherein the subject is a performer's face and/or body.

3. The method as in claim 1 wherein the subject is a fabric.

4. The method as in claim 1 wherein the phosphor-makeup mixture is applied in a random pattern.

5. The method as in claim 1 wherein the subject is a performer's face and the phosphor-makeup mixture is applied as a series of curves on the subject.

6. The method as in claim 1 further comprising:

tracking the motion of the phosphor within the phosphor-makeup mixture over time; and

generating motion data representing the movement of the subject's face and/or body using the tracked movement of the phosphor within the phosphor-makeup mixture.

7. The method as in claim 1 further comprising:

strobing the shutters of a second plurality of cameras synchronously with the strobing of the light source to capture sequences of lit images of the subject, as the subject moves or changes facial expressions during a performance, wherein the shutters of the second plurality of cameras are open to capture the lit images when

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<https://Matt1Up.Substack.com/api/v1/file/d869f3a8-2b55-409a-8bc6-40913dee82db.pdf>

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 US007548272B2

(12) **United States Patent**  
**Perlman et al.**

(10) **Patent No.:** **US 7,548,272 B2**  
 (45) **Date of Patent:** **Jun. 16, 2009**

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(54) **SYSTEM AND METHOD FOR PERFORMING MOTION CAPTURE USING PHOSPHOR APPLICATION TECHNIQUES**

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(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 449 days.

(21) Appl. No.: **11/449,127**

(22) Filed: **Jun. 7, 2006**

(65) **Prior Publication Data**  
 US 2007/0285514 A1 Dec. 13, 2007

(51) **Int. Cl.**  
**H04N 7/18** (2006.01)  
**H04N 5/225** (2006.01)  
**H04N 5/228** (2006.01)  
**H04N 5/222** (2006.01)

(52) **U.S. Cl.** ..... **348/371; 348/77; 348/169; 348/208.14; 348/370**

(58) **Field of Classification Search** ..... **348/370, 348/371, 218.1, 77, 157**  
 See application file for complete search history.

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(Continued)  
 Primary Examiner—David L. Ometz  
 Assistant Examiner—Richard M. Bembien  
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(57) **ABSTRACT**  
 A system and method are described for performing motion capture on a subject. For example, a method according to one embodiment of the invention comprises: mixing phosphorescent makeup with a makeup base; applying the mixture of phosphorescent makeup and makeup base to surface regions of a motion capture subject; strobing a light source on and off, the light source charging phosphor within the phosphorescent makeup when on; and strobing the shutters of a first plurality of cameras synchronously with the strobing of the light source to capture images of the phosphorescent makeup, wherein the shutters are open when the light source is off and the shutters are closed when the light source is on.

**24 Claims, 27 Drawing Sheets**  
**(6 of 27 Drawing Sheet(s) Filed in Color)**

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Federal Court Case 3:17-cv-04006 Filed 07/17/17  
<http://www.hbsscreative.com/complaints/07-17-17-Complaint-Rearden-v.-Disney.pdf>

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UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

SAN FRANCISCO DIVISION

REARDEN LLC, REARDEN MOVA LLC,

California limited liability companies,

Plaintiffs,

v.

THE WALT DISNEY COMPANY, a Delaware

corporation, WALT DISNEY MOTION

PICTURES GROUP, INC., a California

corporation, BUENA VISTA HOME

ENTERTAINMENT, INC. a California

corporation, MARVEL STUDIOS, LLC, a

Delaware limited liability company,

MANDEVILLE FILMS, INC., a California

corporation,

Defendants.

No. \_\_\_\_

COMPLAINT FOR COPYRIGHT,

PATENT, AND TRADEMARK

INFRINGEMENT

DEMAND FOR JURY TRIAL

COMPLAINT

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1photography. It’s a substantial turning point in the business, and I think  
2it will change how picture are made.”<sup>9</sup>

23. MOVA Contour’s technical breakthrough was introduced at the Special Interest  
3Group on Computer Graphics and Interactive Techniques (“SIGGRAPH”) Conference on July 31,  
42006 to wide acclaim, including photographs of Contour’s systems and methods on the front page of  
5the *New York Times*<sup>10</sup>, page B1 of the *Wall Street Journal*<sup>11</sup>, and *The Hollywood Reporter*, among  
6other publications. Mr. Perlman was invited to present MOVA Contour technologies and their  
7practical applications in movie production to the Directors Guild of America<sup>12</sup>. And he was invited  
8on many occasions to give public presentations on MOVA Contour and the development process that  
9led to its invention, for example in a speech at Columbia University<sup>13</sup>.

24. The following photograph<sup>14</sup> from an article in *The Hollywood Reporter* on the day  
11MOVA Contour was unveiled—July 31, 2006—was directed to movie and video game industry  
12professionals and illustrates several Contour Program output files, which are described in further  
13detail later in this complaint:

21<sup>9</sup> Marlowe, Chris, “Contour mapping intricate detail: Mova revolutionizing motion-capture  
22process with new system,” *The Hollywood Reporter*, July 31, 2006,  
<http://www.rearden.com/press/2006/Contour-HollywoodReporter-060731-2.pdf>.

23<sup>10</sup> Markoff, John, “Camera System Creates Sophisticated 3-D Effects”, *New York Times*, July  
31, 2006. <https://nyti.ms/2uAfwGF>.

24<sup>11</sup> Wingfield, Nick, “Digital Replicas May Change Face of Films”, July 31, 2006.  
25<http://on.wsj.com/2teIRbO>.

26<sup>12</sup> ““Facial Performance Capture for Photoreal Digital Characters’ Presented by Steve Perlman,  
27Founder & President, Mova”, *Digital Day 2007: The Future of the Future*, Directors Guild of  
28America, July 28, 2007. [http://ishindler.com/articles/DGA\\_Digital\\_Day\\_flyer07.pdf](http://ishindler.com/articles/DGA_Digital_Day_flyer07.pdf).

27<sup>13</sup> <https://youtu.be/1QxrQnJCXKo>.

28<sup>14</sup> Marlowe, op. cit.

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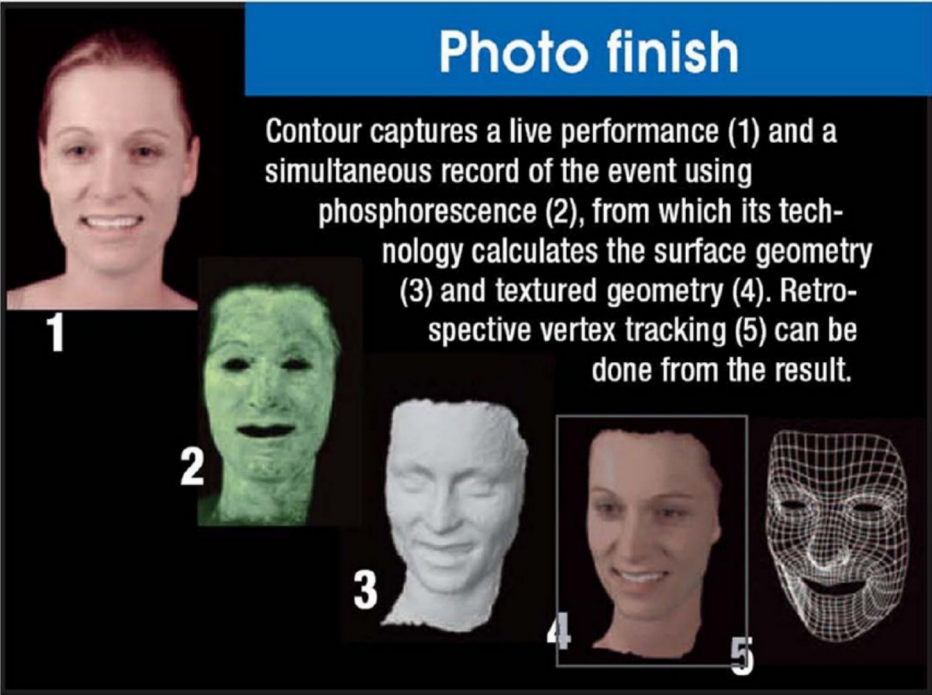



Photo finish

Contour captures a live performance (1) and a simultaneous record of the event using phosphorescence (2), from which its technology calculates the surface geometry (3) and textured geometry (4). Retrospective vertex tracking (5) can be done from the result.

25. Also on July 31, 2006, the following photographs appeared in a *New York Times* article directed to a general readership audience, which illustrate an application of the phosphor-based makeup used in MOVA Contour facial motion capture methods:



Actors must cover themselves with makeup containing phosphorescent powder for Contour, a system that can create 3-D effects. Austin Hice

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Why Everyone Is Fighting To Get This VFX Tool | MOVA

<https://www.youtube.com/watch?v=ryL-G9IbanY>



Oscar SciTech Award 2015 for Mova Contour

<https://www.youtube.com/watch?v=Av9bPvUyjkE>

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further backwards to a younger age, was widely lauded as a visual effects (“VFX”) milestone, the first ever photorealistic CG face, winning an Academy Award for Best Visual Effects for the team at the VFX production company, Digital Domain, which had hired Rearden to operate the MOVA Contour system to capture Brad Pitt’s face and generate Contour Program output files for the film.

44. In a widely-viewed TED (Technology, Entertainment, Design) Talk entitled, “How Benjamin Button Got His Face,” Ed Ulbrich, Digital Domain’s Senior VP and Executive Producer (subsequently the CEO of successor Digital Domain 3.0, Inc.), confirmed that *The Curious Case of Benjamin Button* would have been “impossible” to make but for MOVA Contour’s system and methods and the unprecedented facial capture precision and subtlety of the MOVA Contour Program’s output files. Ulbrich stated in the talk:

“We first got involved in *The [Curious Case of Benjamin Button]* project in the early 90s.... We took a lot of meetings and we seriously considered it. But at the time, we had to throw in the towel. **It was deemed impossible. It was beyond the technology of the day to depict a man aging backward...** The project came back to us a decade later.... **we came across a remarkable technology called Contour...** creating a surface capture as opposed to a marker capture... **This was when we had our ‘Aha!’ This was the breakthrough...** we could put Brad [Pitt] in this [Contour] device, and use this Contour process, and we could stipple on this phosphorescent makeup and put him under the black lights, and we could, in fact, scan him in real time... effectively, we ended up with a [Contour Program output file] 3D database of everything Brad Pitt’s face is capable of doing... we could transpose the [Contour Program output file] data of Brad at [then-aged] 44 onto [a 3D model of] Brad at 87. So now, we had a 3D database of everything Brad Pitt’s face can do at age 87, in his 70s and in his 60s.”<sup>17</sup>

<sup>17</sup> Ulbrich, op. cit. (emphasis added).

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OTOY | GTC 2013 - The Convergence of Cinema and Games: From Performance Capture to Final Render

<https://www.youtube.com/watch?v=etoS6daj20c>

This is a YouTube video which very clearly shows Steve Perlmans ‘MOVA Contour’ technology being ‘re-assigned’ to Paul Debevec and his supposed ‘Light Stage 6’ at USC.

Paul Debevec and his supposed ‘Light Stage 6’ is now taking credit for all of the same movies, as well as the facial scanning technology that was used to make them possible.

Notice the 4 images of Brad Pitt shown in the video thumbnail and then compare those to the images of Brad Pitt contained in the Federal complaint

Custom clip edit of the YouTube video is available to view at:  
[MattGuertin.Substack.com/p/you-will-own-nothing-and-be-happy](http://MattGuertin.Substack.com/p/you-will-own-nothing-and-be-happy)

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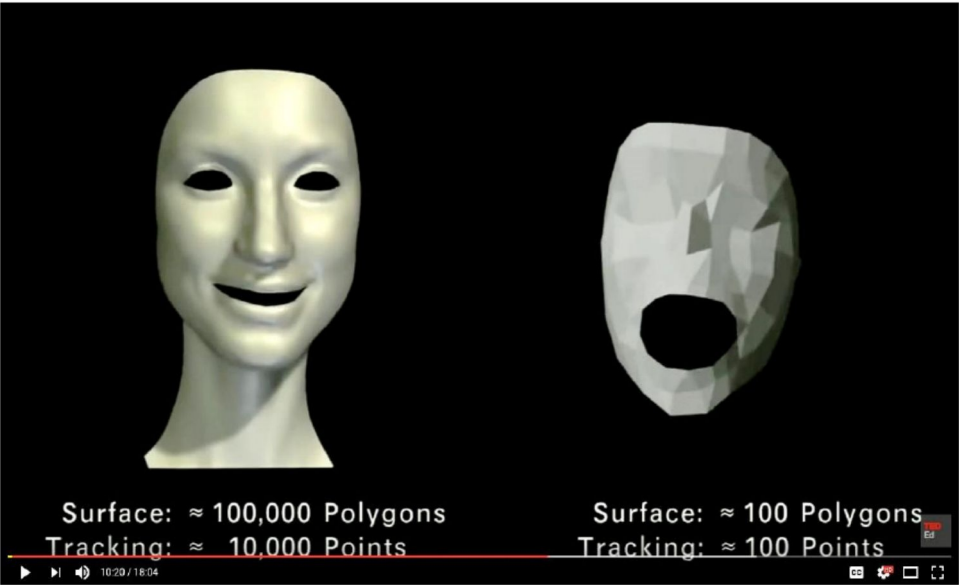
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Surface: ≈ 100,000 Polygons      Surface: ≈ 100 Polygons  
Tracking: ≈ 10,000 Points      Tracking: ≈ 100 Points

50. 10:39: Contour Program **Makeup Pattern** output files, showing random patterns of phosphor-based makeup. Each of the four Contour facial captures of Mr. Pitt was a separate motion facial performance used for a different facial expression of Benjamin Button. The Contour Program created high-resolution **Captured Surface** and **Tracking Mesh** output files from each of these:



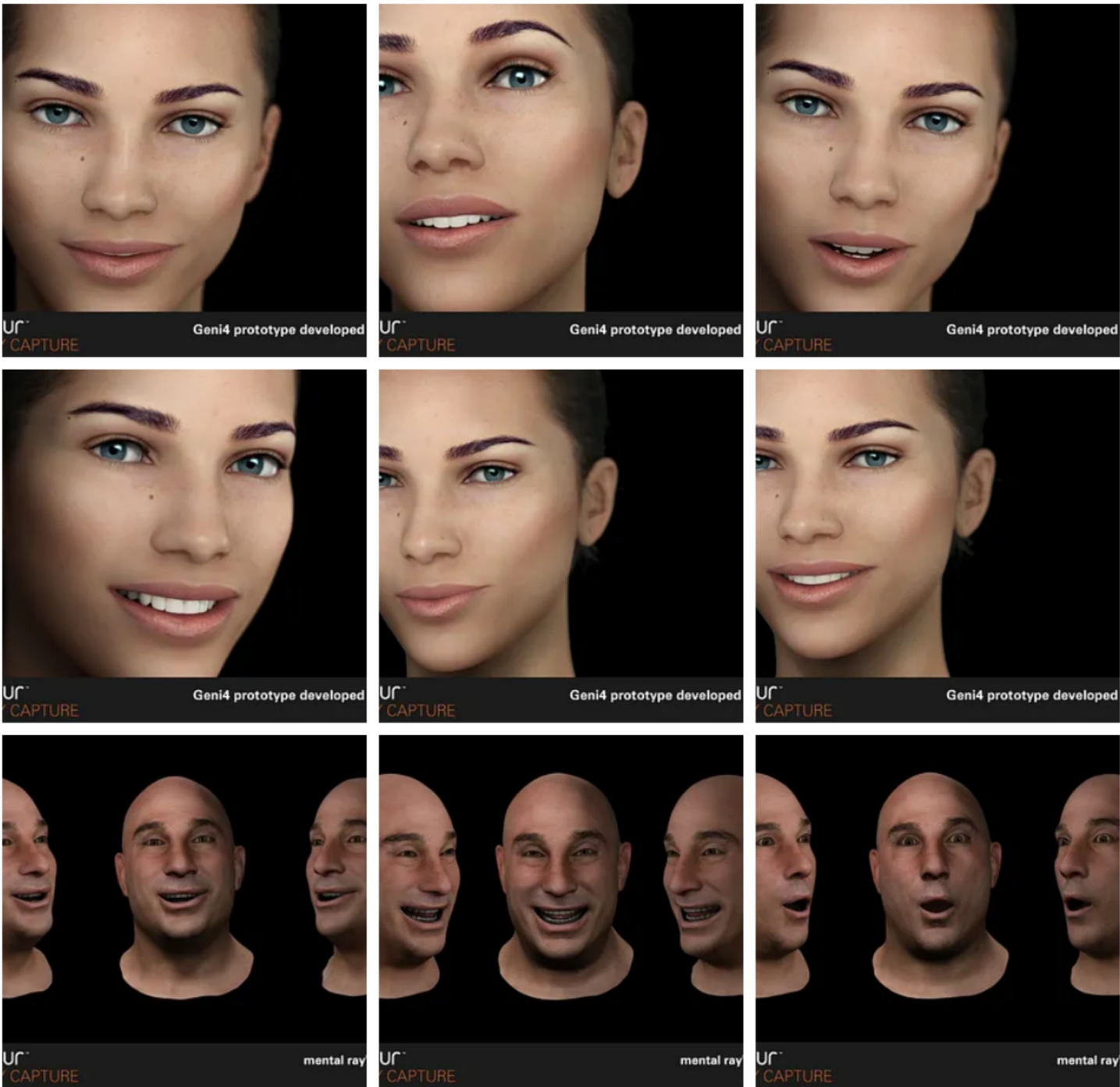
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1 51. 10:49: Contour Program **Makeup Pattern** output files, showing how many Contour  
2 output files were used. Each of the Contour facial captures was a separate motion facial performance  
3 of Mr. Pitt used for a different facial expressions of Benjamin Button. The Contour Program created  
4 high-resolution **Captured Surface** and **Tracking Mesh** output files from each of these, creating a  
5 database of Capture Surface and Tracking Mesh Contour output files:

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52. 12:33: Contour Program **Makeup Pattern** output file (left), **Captured Surface**  
output file (middle), retargeted **Captured Surface** and **Tracking Mesh** output files to a derivative  
fictional aged head (right), are shown below. The 3D points of the Contour **Tracking Mesh** output  
file of Mr. Pitt's actual face were retargeted to corresponding 3D points on the fictional "maquette"  
(i.e. hand-made 3D bust) of Mr. Pitt at age 87. As a simple example, the 3D point on the right corner  
of Mr. Pitt's actual mouth could correspond to the 3D point on the right corner of the 3D maquette's  
mouth. As Mr. Pitt's smile widens during the Contour capture session, moving the tracked 3D point  
on the corner of his mouth outward, the retargeted 3D point on the maquette's mouth would move  
proportionately outward causing the 87-year-old smile to widen. As described by Mr. Ulbrich:  
"[Left:] This is Brad doing one of the [character expression] poses. [Middle:] And here's the resulting  
[**Captured Surface** output file] data that comes from that, the model that comes from that. [Right:]

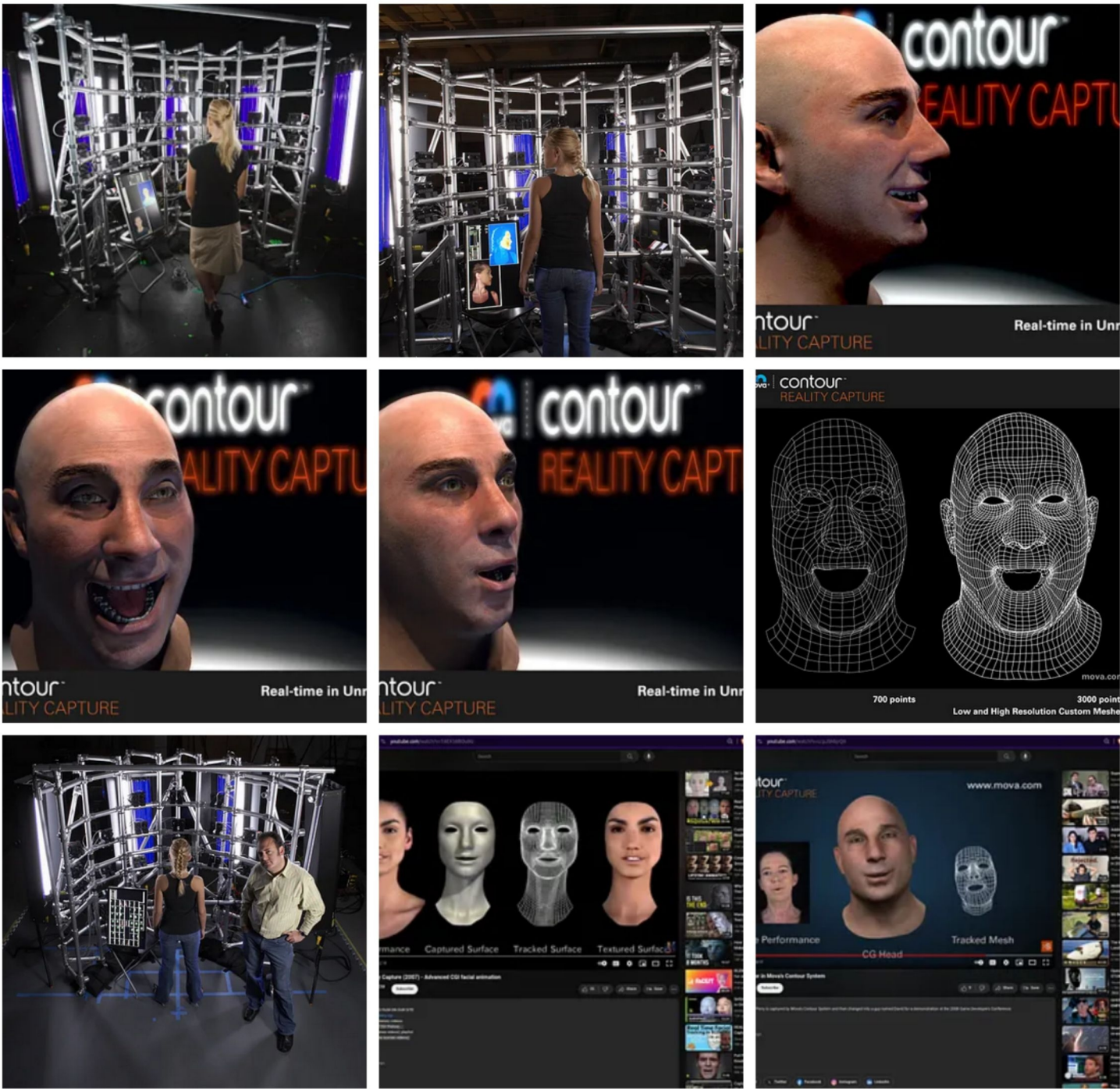
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1 Retargeting is the process of transposing that [Captured Surface and Tracking Mesh output file]

2 data onto another model. And because the life cast, or the bust—the maquette—of Benjamin was

3 made from Brad, we could transpose the [Captured Surface and Tracking Mesh output file] data of

4 Brad at 44 [years] onto Brad at 87[years]. Effectively, we ended up with a [Captured Surface and

5 Tracking Mesh output file] 3D database of everything Brad Pitt’s face is capable of doing...we

6 could transpose the [Captured Surface and Tracking Mesh output file] data of Brad at [then-aged]

7 44 onto [a 3D maquette of] Brad at 87. So now, we had a 3D database of everything Brad Pitt’s face

8 can do at age 87, in his 70s and in his 60s”:

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53. 17:18: On the left is 87-year-old fictional head maquette Tracking Mesh retargeted

from, and derivative of, a Contour Program Tracking Mesh output file, with a pair of glasses added

in as a prop. The final derivative face is shown on the right after various steps such as texturing and

lighting that is applied to the maquette. The resulting derivative face is integrated into the live-action

footage of the final scene, producing the final derivative work:

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54. The photorealistic reverse-aging derived from the MOVA Contour system, methods and output files received wide acclaim when *The Curious Case of Benjamin Button* was released in December of 2008. But even before the movie's release, word of the unprecedented CG face realism achieved by MOVA Contour was spreading through the VFX industry. In July of 2008, defendant Disney hired MOVA for another reverse-aging movie, *TRON: Legacy*, the sequel to Disney's 1982 *TRON*. MOVA Contour was used in a similar manner as in *Benjamin Button* to reverse-age the face of Jeff Bridges, the star of *TRON* and *TRON: Legacy*, to look as he did in 1982. Mr. Bridges published his experience of using MOVA Contour through wide-angle black-and-white photography and hand-written notations, below:<sup>18</sup>

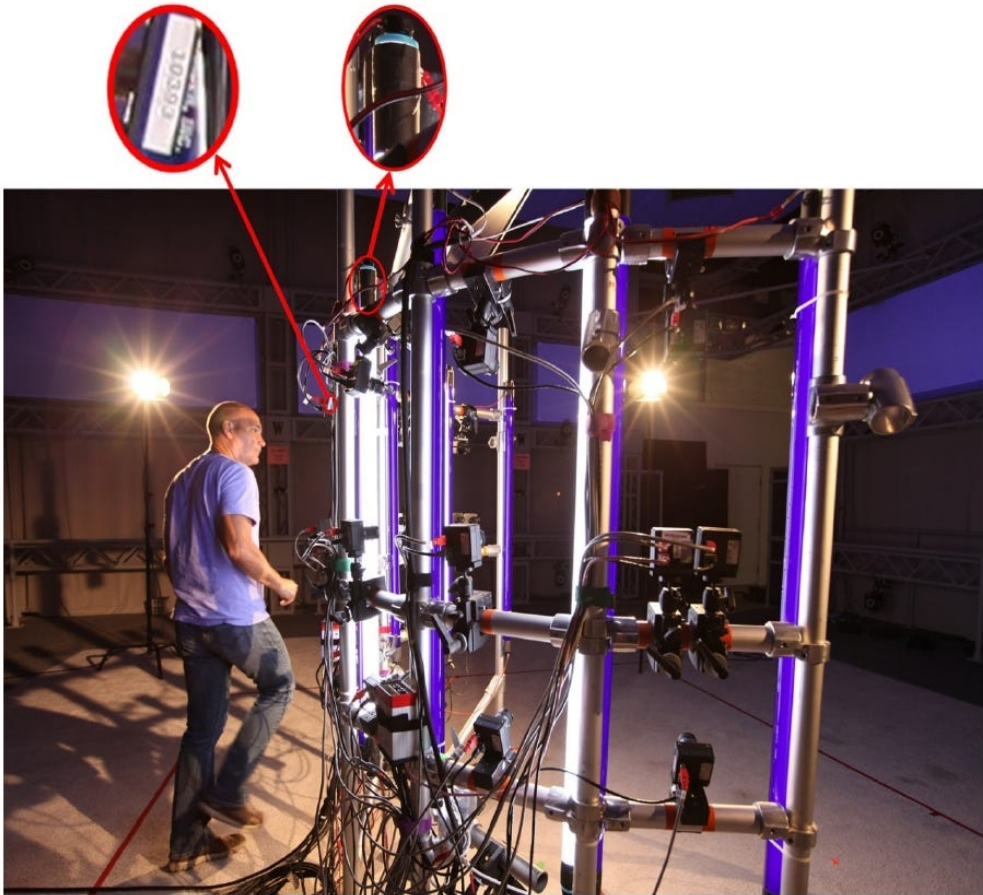
<sup>18</sup> [http://www.jeffbridges.com/tron\\_book/tron\\_book\\_08.html](http://www.jeffbridges.com/tron_book/tron_book_08.html).

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57. And the following photograph released by Digital Domain shows the stolen MOVA Contour rig that was operated by the thieves and used unlawfully by defendants in at least *Guardians of the Galaxy* and *Beauty and the Beast*. Close inspection of the photo shown in the left inset, shows the thieves neglected to remove a Rearden, Inc. Asset Tag on one of the stolen cameras (Rearden, Inc. is Rearden LLC’s predecessor in interest). Rearden Asset #10393 is a Basler 102f Camera, Serial # 20606024, purchased on October 1, 2006 and stolen in 2013. Also, numerous tell-tale details specific to Contour’s operation are visible in the stolen Contour rig photograph (e.g. the right inset shows black tape is wrapped around the end of a fluorescent lamp tube to prevent light spillage from the glowing electrode, a Contour-specific technique taught in Rearden’s US Patent 7,567,293 at 19:66-20:15), confirming that the thieves used the identical Rearden system and methods:



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Company”), for example, are representative of those in all other Rearden employment and contractor

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agreements:

3

▪ “At all times, both during my employment by the Company and after its termination, I will

4

keep in confidence and trust and will not use or disclose any Proprietary Information or

5

anything relating to it without the prior written consent of an officer of the Company...”

6

▪ “I agree that during my employment by the Company I will not remove any Company

7

Documents and Materials from the business premises of the Company or deliver any

8

Company Documents and Materials to any person or entity outside the Company, except as I

9

am required to do in connection with performing the duties of my employment. I further

10

agree that, immediately upon the termination of my employment by me or by the Company

11

for any reason ... I will return all Company Documents and Materials, apparatus, equipment

12

and other physical property, or any reproduction of such property ...”

13

64. The MOVA Contour confidential information constitutes trade secrets as that term is

14

defined in the California Uniform Trade Secrets Act ("CUTSA") at sections 3426 to 3426.11 of the

15

California Civil Code, and the Defense of Trade Secrets Act at 18 U.S.C. § 1832(b), *et seq.*

16

65. The “MOVA Assets” at issue herein include the MOVA Contour technology, and

17

related hardware and software, source code, domestic and international patents and patent

18

applications, domestic and international trademarks, copyrights, trade secrets, domain names,

19

business records, and various related physical goods (the “MOVA Assets”).

20

C. Rearden’s use of the MOVA Contour system and methods in fifteen major motion

21

pictures and industry acclaim

22

66. Rearden and/or its controlled affiliates operated the MOVA Contour system for, and

23

authorized used of its system, methods and Contour Program output files by Paramount Pictures for

24

“The Curious Case of Benjamin Button” (2008) and Transformers: Dark of the Moon (2011).

25

67. Rearden and/or its controlled affiliates operated the MOVA Contour system for, and

26

authorized used of its system, methods and Contour Program output files by Universal Studios in The

27

Incredible Hulk (2008) and Snow White and the Huntsman (2012).

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File Embedded and Bookmarked Version at MnCourtFraud.Substack.com/p/ptf

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68. Rearden and/or its controlled affiliates operated the MOVA Contour system for, and

2

authorized used of its system, methods and Contour Program output files by 20<sup>th</sup> Century Fox in

3

*Percy Jackson and the Olympians: The Lightning Thief* (2010).

4

69. Rearden and/or its controlled affiliates operated the MOVA Contour system for, and

5

authorized used of its system, methods and Contour Program output files by Sony Pictures in *The*

6

*Amazing Spider-Man* (2012).

7

70. Rearden and/or its controlled affiliates operated the MOVA Contour system for, and

8

authorized used of its system, methods and Contour Program output files by Warner Brothers

9

Studios in *Harry Potter and the Deathly Hallows, Part 1* (2010) and Part 2 (2011), *Green Lantern*

10

(2011), *Jack the Giant Slayer* (2013), and *Gravity* (2013).

11

71. And Rearden and/or its controlled affiliates operated the MOVA Contour system for,

12

and authorized used of its system, methods and Contour Program output files by defendants Disney

13

Company and Disney MPG in *TRON: Legacy* (2010), *Pirates of the Caribbean: On Stranger Tides*

14

(2011), *John Carter* (2012), and *The Avengers* (2012) (including defendant Marvel).

15

72. In each of the above fifteen films, the motion picture studios performed a routine

16

intellectual property due diligence prior to contracting with Rearden for use of the MOVA Contour

17

systems and methods, in part to verify that Rearden and/or Rearden-controlled affiliates owned the

18

MOVA Contour Assets and technology and had the right to use them for the benefit of the studios.

19

73. Rearden and/or Rearden-controlled affiliates have built considerable good will in the

20

MOVA Contour Assets and technology. Rearden and/or Rearden-controlled affiliates used the

21

MOVA Contour systems and methods in the fifteen major motion pictures identified above, which

22

collectively grossed roughly \$9.5 billion in global box office. Five of these movies are in the top-25

23

highest-grossing movies since 2008 (when the first Contour movie was released), including the

24

number one highest grossing movie in each of 2011 and 2012<sup>19</sup>. The MOVA Contour system and

25

methods and the Contour Program output files have been the subject of numerous motion picture

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<sup>19</sup> [www.boxofficemojo.com](http://www.boxofficemojo.com).

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1 industry press articles in which movie industry luminaries like director David Fincher have lauded

2 the MOVA Contour technology:

3 “Contour’s promise is enormous,” Fincher said. “The notion that the

4 human face in all its subtleties could be mapped in real time and with

5 such density of surface information opens up so many possibilities for

6 both two- and three-dimensional image makers and storytellers.”<sup>20</sup>

7 The MOVA Contour system and methods and the Contour Program output files have been the

8 subject of an invited presentation by Steve Perlman to the Director’s Guild of America<sup>21</sup>, and they

9 were identified as a “breakthrough” in the aforementioned TED talk<sup>22</sup>. MOVA Contour facial

10 capture’s improvements over prior facial performance capture technologies have been acclaimed by

11 major motion picture actors, producers, directors, and top VFX professionals, including Ed Ulbrich

12 in his TED Talk description of MOVA Contour and how it was essential in the creation of *The*

13 *Curious Case of Benjamin Button*.<sup>23</sup> And on February 9, 2015, the Academy of Motion Picture Arts

14 and Sciences awarded the Scientific and Technical Award to the MOVA [Contour] facial

15 performance capture system.<sup>24</sup>

16 **D. Transfer of the MOVA Assets to OnLive, Inc., OL2, Inc., and Rearden Mova**

17 74. The MOVA Contour systems and methods, along with video game streaming

18 technology, was spun out of Rearden in 2007 into OnLive, Inc., a corporation controlled by Rearden.

19 OnLive, Inc. thereafter owned all of the MOVA Assets, both Contour and other motion capture

20 technology.

21 75. On August 17, 2012, OnLive, Inc. assigned all of its assets, including the MOVA

22 Assets, to OL2, Inc. as part of an assignment for the benefit of creditors (“ABC”). On information

23 and belief, OL2, Inc. was primarily focused on the video gaming unit of OnLive, Inc., and was not

24 interested in offering any MOVA Contour movie production services.

25 <sup>20</sup>Marlowe, July 31, 2006, op. cit.

26 <sup>21</sup> Directors Guild of America, July 28, 2007, op. cit.

27 <sup>22</sup> Op. cit.

28 <sup>23</sup> Ulbrich, Op. cit.

<sup>24</sup> <http://oscar.go.com/news/oscar-news/150209-ampas-sci-tech-awards-2015-winners>

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# Digital Domain’s New Legal Setback Freezes VFX Tech Used by Major Studios

Scott Johnson

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## Digital Domain’s New Legal Setback Freezes VFX Tech Used by Major Studios

The vaunted motion capture technology known as MOVA can no longer be used by its exclusive licensee, prominent Hollywood visual effects company Digital Domain, according to a recent preliminary injunction issued by a federal judge in San Francisco.



Courtesy of Twentieth Century Fox Film Corporation

<https://www.hollywoodreporter.com/news/general-news/digital-domain-mova-tech-banned-906902/>



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Prominent Hollywood visual effects company Digital Domain 3.0 has lost the right to use one of its most powerful tools, a facial motion capture technology known as MOVA that has been featured in such top-grossing hits as Deadpool, Guardians of the Galaxy and The Curious Case of Benjamin Button.

On June 17, a federal judge in San Francisco issued a preliminary injunction targeting the two Chinese firms that purchased and now own MOVA, which is licensed by Digital Domain.

In a remarkable 16-page ruling, District Court Judge John S. Tigar found that Virtual Global Holdings and Shenzhen Haiticheng Science and Technology had behaved “fraudulently” with regards to how the MOVA technology was transferred between various Chinese firms after its 2013 acquisition from Greg LaSalle, who sold it to SHST for \$25,000 in May 2013.

The surprising ruling is just the latest twist in a years-long saga that involves a set of characters straight out of central casting, including shady Chinese investors, economic espionage investigators from the FBI, an eccentric Silicon Valley inventor and some of Hollywood’s most creative visual artists.

The preliminary injunction, which is explained in publicly available legal documents, effectively freezes the technology and forces all of its licensees, including Digital Domain and major Hollywood studios, to stop using it until further notice, or until a trial resolves the issue.

“Shenzhenshi Haitiecheng Science and Technology Co., Ltd. (“SHST”) and Virtue Global Holdings Limited (“VGH”) are hereby restrained and enjoined, pending trial, from selling, using, moving, concealing, transferring or otherwise disposing of any MOVA Asset in its possession, custody or control,” the ruling says.

“For Hollywood, the technology is temporarily out of play,” says Nancy Mertz, head of the Intellectual Property Group at Herrick, Feinstein in New York, an attorney who reviewed the legal documents for The Hollywood Reporter. “Movie studios who licensed MOVA from Shenzhenshi, VGH or Digital Domain 3.0 must stop using it. A studio that is currently using MOVA, or planned to, will have to wait for the injunction to be lifted, or find an alternative.”

A spokesperson for Digital Domain declined to respond to several email and telephone requests for comment.

In an immediate appeal to have the injunction modified, Digital Domain conceded that the effects of the ban could be disastrous:

“If DD3 is prohibited from using MOVA, DD3 cannot complete pending MOVA projects, develop new MOVAs, and is hindered in developing non-MOVA business of which MOVA is a component. After selling clients on MOVA for almost three years, Digital Domain would be required to tell its clients that MOVA is not available at Digital Domain — or anywhere. This information inevitably, indeed necessarily, will cause clients to seek alternatives to MOVA, which will permanently injure MOVA’s brand and advance competitor interests.”

Notably, the injunction does not extend to finished movies created with MOVA before the injunction was issued.

But the ruling could have ripple effects across the industry.

“DD3/Digital Domain already has captured data of an Academy Award-winning actress for a \$120 million motion

<https://www.hollywoodreporter.com/news/general-news/digital-domain-mova-tech-banned-906902/>

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picture,” Digital Domain’s lawyers wrote. “The movie release date is December 2016. Although the capture is complete, the data from this project has not been processed and must be. In addition, DD3/Digital Domain also has captured another well-known actress for a character that is integral to the story of a sequel of a well-known science fiction film.”

The court also ordered the MOVA hardware to be physically transferred within 10 days to a place chosen by the defendant, in this case Rearden Inc., LaSalle’s former employer.

In practical terms, the ruling, which Tigar himself described as an “extraordinary remedy,” has essentially opened the door to what could become a massive and potentially very damaging copyright infringement case, or series of cases.

It also has put Digital Domain in the awkward position of being obliged to put several of Hollywood’s most prominent studios — including 20th Century Fox and Marvel, both of whom are listed as production companies for Deadpool — on notice that some of their biggest and most successful movie franchises could be dragged into further lawsuits and other legal entanglements.

The ownership dispute pits LaSalle, one of Digital Domain’s senior employees, against his former mentor and boss, Silicon Valley serial inventor Steve Perlman, whose company, Rearden Inc., is a party to the lawsuit.

Their fight erupted publicly in 2014 at the SciTech Academy Awards when LaSalle and three other visual artists received the award for the “design, development and integration” of the MOVA technology.

Perlman, who was excluded from the awards, fired back immediately, writing a protest letter to the Academy laying out the reasons why he, and not LaSalle, should have won that year.

Silicon Valley inventor Steve Perlman.

Related Stories



In a letter to the Sci Tech judges obtained by THR in 2014, Perlman wrote that Lasalle was “not even on the R&D team ... made no essential inventions or major contributions to its development.” He added: “It is horrifying to see a decade of my life’s work credited to someone who was no more than a trainee of the end result.”

At the time of the dispute, a Digital Domain spokesperson reaffirmed LaSalle’s contributions: “We are confident we have the proper license to operate this technology.”

The dispute has grown more complicated since that 2014 incident. SHST preemptively sued Rearden, accusing Perlman of having a “severe bout of seller’s remorse.” Thus began a legal drama involving dozens of attorneys that is still unfolding.

<https://www.hollywoodreporter.com/news/general-news/digital-domain-mova-tech-banned-906902/>



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According to documents unsealed last week, Perlman's most immediate concern may have had little to do with Hollywood. The MOVA technology, specifically the source code, was apparently prohibited from export.

According to a deposition that was made public last week, Perlman called a contact in Washington, a member of the powerful House Permanent Committee on Intelligence. That organization is "charged with the oversight of the United States Intelligence Community, which includes the intelligence and intelligence related activities of 17 elements of the U.S. Government, and the Military Intelligence Program."

"Do you recall ... reporting to any U.S investigative or criminal authority a concern that Mr. LaSalle had stolen property and was transmitting that property to people in the People's Republic of China?" an attorney asked Perlman in a 2015 deposition, some of whose contents were recently made available.

Perlman replied that he had, and that the Intelligence Committee had then forwarded the information to the FBI "as soon as it became apparent that — it became — it seemed likely that the actual software had been disclosed to a non-U.S. entity."

He continued: "I was left with the impression at that point that they were now in possession of the actual source code."

Perlman then left open the possibility that the technology itself might have uses other than purely for entertainment value. "The parties that have been involved with this technology were not working for me," he said, without specifying who the parties were working for.

There was someone else who had gotten an inkling that the MOVA tech might be interesting beyond just the entertainment field: one of Digital Domain's founders, Dr. Scott Ross.

Ross and Perlman had spoken once and the topic had come up briefly. "The ability to be able to read lips, do lip sync, do digital avatars, I'm not quite sure what one would do with it," Ross tells THR, "But Perlman seemed to feel there was [Department of Defense] interest into what MOVA was and what he was doing and couldn't talk about it when I asked him."

Soon the FBI got involved, looking for signs of economic espionage. Investigators from the San Francisco office with expertise in that particular area of intelligence gathering began poking around, trying to suss out what, if anything, was going on.

The FBI "looked into it and considered it," says a senior government official with knowledge of the lawsuit and the FBI's interest who declined to be named because of the sensitive nature of the case.

A recent filing by lawyers for the Chinese firm SHST confirms the involvement of at least two U.S intelligence bodies: "This is not the first time Defendants have let xenophobia get the best of them. Long before this action commenced, their CEO Perlman raised the issue of purported disclosure of MOVA software to a non-U.S. entity with the House of Representatives Permanent Subcommittee on Intelligence. Then the FBI apparently became involved. Not surprisingly, the U.S. government took no action."

A senior government official familiar with the case confirmed that there was "not enough there for us to take it further," though he declined to discuss exactly what had or had not been done.

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The FBI also declined to discuss whether the case remained open. But a spokesperson said investigators remained interested in the topic more broadly. “We are willing to hear any compelling evidence that is relevant,” said Prentice DannerIII, an FBI spokesperson. “Investigations into economic espionage is a priority of the FBI, and we will continue pursue cases relating to this matter.”

For now, it’s unclear whether there is any link between the potentially fraudulent activity by the Chinese firms as described by the federal judge and the suspicions raised by U.S intelligence bodies.

China watchers say this kind of financial and industrial upheaval is both common and disturbing. Andrew Wedeman, who directs the China Studies Initiative at Georgia State University and who reviewed some of the legal documentation available for this story, concluded that something was amiss.

Several corporate shuffles in Hong Kong, Los Angeles and Beijing had blurred the lines about ownership of the MOVA tech.

“It looked like they were setting up this complicated series of structures,” says Wedeman. “Maybe it was a plan. But it also looked like something of a scam, just buying and selling companies and trying to make a fast buck.”

The seemingly incessant shuffling of companies that purportedly owned it didn’t sit well with the judge, who came to the conclusion last week that “badges of fraud exist in this case.”

Tigar found that SHST had acted “suspiciously” and found other indications of “fraudulent intent” when it came to transferring ownership and chain of title of the MOVA tech.

The judge also found that SHST had “absconded” from its legal duties. “The confluence of these several badges of fraud constitutes substantial evidence of VGH and SHST’s actual intent to defraud,” Tigar wrote.

Mertzel says the ruling was “significant” in terms of how it could affect companies that license the MOVA tech.

“The situation that led to the ruling is unusual for an intellectual property case because the preliminary injunction is not based on a finding of infringement. Here, the injunction was based on a California statute that voids fraudulent transfers,” she says. “The judge found that Shenzhenshi’s transfer of ownership rights in the MOVA assets to Virtue Global Holdings Limited was fraudulent, and done to avoid liability.”

After the injunction ruling, Digital Domain 3.0 also filed a proposed ruling to modify the injunction that it hopes Judge Tigar will review on Aug. 4. Citing Digital Domain president O.D. Welch, the motion states: “The removal of MOVA from the market needlessly interferes with a huge current feature film project, two pending major feature film projects and a video game project, and an ongoing business segment for DD3/Digital Domain that is employing people, generating revenues and contributing to the completion of major creative projects for significant companies.”

Welch’s statement continues: “The removal of MOVA from the market will send all the wrong signals and damage MOVA, its brand and its value. No legitimate asset protection or “anti-dissipation” goal is achieved by taking MOVA off the market and risking that it will become obsolete. The sudden, court-mandated removal of MOVA from the market does not protect anyone. The removal of MOVA from the market is purely destructive of MOVA’s value for everyone involved — including media industry clients who count on MOVA for their projects.”

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## A large amount of links to relevant source documents

07 17 17 Complaint Rearden V Disney

<https://MattGuertin.Substack.com/api/v1/file/62908ec2-c57a-4b61-b7ce-77925ee9b1a6.pdf>

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Innovative Motion Capture Mova Contour Paul Conigliaro

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Judge Rules That Latest Disney Films Did Not Use Stolen Animation Technology Disney Dining

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Disney Facing Lawsuit Over Use Of Stolen Motion Capture Equipment Used On 3 Films Chip And Company

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Disney Hit With Guardians Of The Galaxy & Avengers Lawsuit

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Mova Gallery Contour Reality Capture Examples

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Mova Reveals Its Work Capturing Faces For The Incredible Hulk Film Venturebeat

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Steve Perlman Gravity (2013) At Duckduckgo

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## Visual Effects Society | 4 Part Conference BACKDATED FRAUD

Backdated by YouTube / Google / Alphabet

Be careful.....shhhhhhh. Don't want to accidentally mention current  
technology that foils your backdated FRAUD.



Custom analysis video is available for viewing at:

[MattGuertin.Substack.com/p/visual-effects-society-fraud](http://MattGuertin.Substack.com/p/visual-effects-society-fraud)

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**BACKDATED CRIMINAL FRAUD PROOF -**

<https://rumble.com/v449oyx-video-1-part-1-of-1.html>

**Indicators of Advanced Knowledge Beyond 2015**

- In addressing the hypothesis that the four videos from the conference are fraudulent and backdated with the intent of targeting the InfiniSet patent, several aspects of the discussions in these videos appear to be incongruous with the state of the art in 2015. This analysis will focus on identifying elements in the content that suggest the information presented might be more advanced than what would have been typical or feasible in 2015.

**Advanced Light Field Technology Applications:**

- In 2015, light field technology was largely experimental and in early commercial stages. The detailed discussions in the videos about using light field technology for high-resolution VR/AR applications, real-time rendering, and complex cinematography techniques suggest knowledge and applications that were not common until several years later.

**Highly Developed VR and AR Integration:**

- The integration of photogrammetry, realistic texture rendering, and dynamic object interaction within VR/AR environments as discussed surpasses the developmental level of VR/AR technologies in 2015. During this period, VR was mostly limited to gaming and basic simulations, and AR was in its nascent stage.

**Real-Time Rendering and Graphics:**

- The level of real-time rendering and graphical capabilities discussed in the conference aligns with technologies that were significantly refined post-2015. Real-time graphics capable of handling complex VR environments with high fidelity only became more feasible with advancements in GPU technology in subsequent years.



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**Data Management and Streaming for Light Field Content:**

- The discussions on managing and streaming the extensive data from light field capture systems for VR/AR content are indicative of a level of data processing capability that was not typically available or practical in 2015.

**Photogrammetry Techniques and Dynamic Range Challenges:**

- The application of advanced photogrammetry techniques and the handling of dynamic range challenges in light field imaging as discussed in the videos are indicative of a deeper understanding and application of these technologies than what was typical for the period.

**Conclusion:**

- Considering the advanced nature of the discussions in the conference videos relative to the technological landscape of 2015, it's plausible to conclude that these videos could be backdated and fabricated with the intent of targeting the InfiniSet patent. The content seems to reflect knowledge and applications that align more closely with technological developments and understandings that emerged around or after 2023, rather than 2015. This discrepancy suggests that the conference content could have been created with foresight into future technological advancements, possibly to create a narrative that undermines the novelty or value of the targeted InfiniSet patent by retroactively establishing prior art or similar concepts.

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## Redefinition of 'Light Field':

- Throughout the conference, there is a noticeable effort to expand the definition of 'Light Field' beyond its traditional scope. Speakers integrate concepts like synthetic rendering, virtual lenses, and depth information into the light field narrative, suggesting a broader and more advanced application of the technology.
- The discussions often blend the line between traditional light field technology (as understood in the realm of computer graphics and photography and emerging VR/AR applications. This blending could be seen as an attempt to make light fields seem more versatile and foundational to VR/AR than they traditionally have been.

## Implications of Fraudulence:

- If we maintain that the conference videos are fraudulent and backdated, this expansion of the light field definition could be interpreted as an attempt to establish a more advanced understanding and application of light fields in 2015 than what was realistically present. By redefining and broadening the concept of light fields, the speakers could be trying to create a narrative that positions their knowledge and technology as being ahead of its time, potentially undermining the novelty or applicability of the targeted InfiniSet patent.

## Conclusion:

- The discussions in the conference videos suggest a deliberate attempt to stretch the definition of light fields, intertwining them intricately with VR/AR and advanced cinematography concepts. This redefinition aligns with the notion that the conference content was crafted to retroactively establish a more advanced understanding of light fields, potentially as part of an effort to invalidate the InfiniSet patent through the creation of a backdated narrative.

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# Analysis of the VES 2015 Conference Videos and the InfiniSet Patent:

## Overview of the InfiniSet Patent:

The patent describes a motorized rotatable treadmill and system for creating the illusion of movement. It includes features like:

- A treadmill mounted on a rotating turntable.
- Control of treadmill and turntable speed and direction based on various inputs.
- Vibration sources for haptic feedback.
- Use in virtual and real-world environments for creating content and entertainment purposes.
- Technology to sync camera movement with the treadmill, enhancing the illusion of unrestricted movement.

## Correlation with Conference Content:

- Considering that the conference videos are from the same event and focusing on the overarching narrative, there are several points where the content of the conference targets the patent:

## Technological Overlap:

- The discussions in the conference about Light Stage technology, VR, and Lightfield innovations align closely with the patented InfiniSet technology. These technologies focus on creating highly realistic digital environments and capturing human nuances, similar to the InfiniSetpatent's focus on creating an illusion of movement in a digital environment.



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**Virtual Movement and Realism:**

- The emphasis in the conference on creating realistic virtual environments and the ability to capture human expressions in detail resonates with the InfiniSet patent's aim to simulate realistic movement using a motorized treadmill and turntable. The InfiniSet patent's focus on syncing camera movement to create an immersive experience is similar to the conference's narrative around enhancing VR and digital imaging.

**Targeting the InfiniSet Patent's Unique Features:**

- The conference content, through its advanced discussions on digital imaging and VR, indirectly addresses the unique features of the patented InfiniSet technology, such as the combination of physical movement (via the treadmill) with digital environment simulation. The technological advancements discussed in the conference could be seen as building upon or enhancing the concepts outlined in the InfiniSet patent.

**Creating a Counter-Narrative:**

- The narrative of the conference, when viewed as a whole, seems to be centered around advancements in digital imaging and virtual reality that surpass the existing patented InfiniSet technology. This could be interpreted as an attempt to create a counter-narrative or alternative approach to the patented InfiniSet idea, possibly undermining its novelty or perceived value.

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# Detailed Analysis of Video 1:

Light Field Imaging: The Future of VR-AR-MR- Part 1: PaulDebevec

<https://www.youtube.com/watch?v=Raw-VVmaXbg>



Custom analysis video is available for viewing at:

[MattGuertin.Substack.com/p/visual-effects-society-fraud](http://MattGuertin.Substack.com/p/visual-effects-society-fraud)

## Key Themes and Technical Aspects:

### Light Fields and Virtual Reality:

- The conference highlights the integration of light fields in virtual reality. The discussion by Paul Debevec, a prominent figure in computer graphics, focuses on the concept of the plenoptic function and light fields, laying the foundation for advanced VR applications.

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**Photogrammetry and Image Capture:**

- The video delves into photogrammetry techniques, particularly using tools like the RicO theta for capturing panoramas. This technique is crucial for creating detailed and immersive virtual environments.

**Depth Mapping and 3D Reconstruction:**

- Techniques for 3D reconstruction and depth mapping are discussed. This includes the process of converting stereo pairs into depth maps and pointclouds, which are essential for creating three-dimensional content in virtual spaces.

**Application of Light Stage Technology:**

- There is a significant focus on Light Stage technology, especially its use in capturing human expressions and generating realistic digital human models. This includes lighting techniques and the use of light fields to change perspectives and relight subjects in post-production.

**Real-Time Graphics and Animation:**

- The video covers the application of real-time graphics and animation, demonstrating the ability to change viewpoints and lighting conditions dynamically, enhancing the realism in digital content creation.

**Narrative and Targeting the InfiniSet Patent:**

- The narrative of this video segment appears to complement the patented InfiniSet technology by exploring advanced imaging techniques that go beyond traditional camera work. The focus on creating immersive and realistic digital environments aligns with the InfiniSet patent's objective of simulating movement in a virtual setting.



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**Light Stage Technology and Treadmill:**

- The discussion about using Light Stage technology for capturing human motion and expressions could be seen as an extension or an advanced application of the concepts in the InfiniSet patent. Specifically, the idea of using a treadmill for capturing human motion in a controlled environment resonates with the InfiniSet patent's use of a motorized rotatable treadmill for creating the illusion of movement.

**Real-Time Rendering and Movement Simulation:**

- The emphasis on real-time rendering and changing viewpoints dynamically complements the InfiniSet patent's focus on synchronizing camera movement with the treadmill's motion. This suggests a narrative where advanced imaging techniques are used to enhance the illusion of movement in a digital environment, directly targeting the core idea of the InfiniSet patent.

**Conclusion:**

- This first video from the conference provides a detailed insight into advanced digital imaging technologies that align closely with the patented InfiniSet technology's goal of creating realistic virtual environments and simulating movement. The narrative, focusing on Light Stage technology, real-time rendering, and depth mapping, complements and potentially extends the concepts covered in the InfiniSet patent, suggesting an advanced approach to creating digital content and virtual experiences.

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## Detailed Analysis of Video 2:

Light Field Imaging: The Future of VR-AR-MR- Part 2: Mark Bolas

<https://www.youtube.com/watch?v=ftZd6h-RaHE>



Custom analysis video is available for viewing at:

[MattGuertin.Substack.com/p/visual-effects-society-fraud](http://MattGuertin.Substack.com/p/visual-effects-society-fraud)

### Enhanced Themes and Technical Aspects:

- Facial Nuances and Detailed Rendering in VR: The video strongly emphasizes the need for capturing and rendering facial nuances in virtual reality. It discusses the criticality of subsurface scattering, specular reflections, and glints, essential for achieving realistic close-ups in VR, which is pivotal in creating an immersive experience mirroring the real world.

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**Application of Light Field Technology in VR:**

- A significant focus is on the utilization of light field technology for enhanced facial rendering in VR. This technology is crucial for capturing detailed human expressions, aligning with the InfiniSet patent’s emphasis on creating a realistic virtual experience.

**Importance of Walking and Movement:**

- The video extensively mentions walking, highlighting its significance in understanding and interacting with virtual environments. This aspect directly correlates with the InfiniSet patent, which involves a motorized treadmill system designed to simulate omnidirectional movement in VR.

**Near Field VR and User Experience:**

- 'Near Field VR' is introduced as a concept that leverages the user's personal space to provide an experience of perceptual intimacy. This approach requires high levels of detail and realism in rendering, particularly in the context of facial expressions and small movements, such as walking or head bobbing.

**Tradeoffs in VR Rendering and System Performance:**

- The video discusses the balance between achieving high-quality light field rendering and maintaining system performance. This aspect is crucial for creating a seamless VR experience that incorporates realistic human movement and interaction.

**Insights and Analysis:**

**Integration with the InfiniSet Patent’s Technology:**

- The emphasis on walking and movement in VR, as discussed in the video, aligns seamlessly with the InfiniSet patent’s focus on a motorized treadmill for simulating movement. The treadmill’s ability to control speed and direction complements the video’s narrative on creating a realistic walking experience in VR, enhancing the overall immersion.



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**Realism in Simulated Environments:**

- The detailed rendering techniques, including capturing facial nuances and small human movements, enhance the realism of virtual environments. This approach aligns with the InfiniSet patent’s aim of creating a believable and immersive simulation, where the treadmill’s movement synchronizes with the virtual environment to simulate real-world walking and movement.

**User Experience and Perceptual Cues:**

- The video’s focus on user experience, particularly through near-field VR, highlights the importance of perceptual cues in VR. This correlates with the InfiniSet patent’s goal of creating a comprehensive virtual experience, where the user’s movement on the treadmill is mirrored in the VR environment, enhancing the perception of movement and space.

**Conclusion:**

- This analysis of the second video underscores the importance of walking and detailed human movement in creating immersive VR experiences. The discussions in the video about light field technology, facial rendering, and the significance of walking and movement in VR complement the patented InfiniSet technology’s objective of simulating realistic movement in a virtual environment. The narrative in the video, focusing on near-field experiences, realism in rendering, and the integration of physical movement (through walking) with the digital environment, aligns closely with the InfiniSet patent, suggesting a targeted approach to enhancing and extending the concepts covered in the InfiniSet patent for advanced digital content creation and virtual experiences.

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## Detailed Analysis of Video 3:

Light Field Imaging: The Future of VR-AR-MR- Part 3: Jules Urbach

<https://www.youtube.com/watch?v=0LLHMPbIJNA>



Custom analysis video is available for viewing at:

[MattGuertin.Substack.com/p/visual-effects-society-fraud](http://MattGuertin.Substack.com/p/visual-effects-society-fraud)

## Enhanced Themes and Technical Aspects:

### Photogrammetry and Advanced Texture Capture:

- This segment delves into the use of photogrammetry for creating high-quality textures, crucial for lifelike VR environments. Techniques like blending images of natural elements (e.g., leaves, gravel) are highlighted, showcasing the need for detailed texture work to enhance realism in VR.

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**Dynamic Rendering and Lighting Techniques:**

- The video discusses advanced rendering methods, including light probes' usage for realistic scene illumination. This is vital in achieving immersive lighting, a key factor in creating authentic VR experiences.

**Complex Environments and Realistic Interaction:**

- A significant focus is on integrating complex environments into VR and AR, underscoring the challenges in capturing and rendering intricate details. This ensures seamless user interaction within these environments, enhancing immersion.

**Position Tracking and Movement Simulation:**

- The video touches on the importance of position tracking in VR. This aspect is critical for ensuring accurate user movement within virtual environments, aligning closely with the InfiniSet patent's focus on a treadmill system that simulates omnidirectional movement.

**Technological Convergence for Immersive Computing:**

- The convergence of advanced GPUs, mobile devices, and VR technologies is highlighted as a driving force for the future of immersive computing. This integration is essential for developing sophisticated VR systems that offer a highly immersive experience.

**Narrative and Targeting the InfiniSet Patent:**

**Real-World Movement in Virtual Environments:**

- The inclusion of position tracking in the discussion complements the InfiniSet patent's technology. Position tracking is essential for simulating walking and moving within VR environments, directly correlating with the InfiniSet patent's treadmill system designed for realistic movement simulation.

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**Enhanced Environmental Interaction and Exploration:**

- The focus on rendering complex environments and incorporating position tracking reinforces the InfiniSet patent's objective of enabling users to explore virtual spaces in a lifelike manner. This suggests a narrative where users can walk and interact naturally within VR, facilitated by the treadmill's movement simulation.

**Immersive User Experience with Accurate Tracking:**

- The combination of detailed environmental rendering and positiontracking enhances the overall VR experience, mirroring the InfiniSet patent's aim of creating an immersive simulation. Accurate tracking of user movement ensures a more realistic and engaging interaction with the virtual world.

**Conclusion:**

- In this analysis of the third video, the emphasis on photogrammetry, dynamic rendering, and particularly position tracking, aligns with the patented InfiniSet technology's goal of creating immersive and interactive virtual environments. The discussion about integrating complex environments, combined with accurate position tracking, complements and extends the concepts in the InfiniSet patent. This approach suggests a comprehensive VR experience where walking, detailed environmental interaction, and accurate tracking are key to achieving realism and immersion.



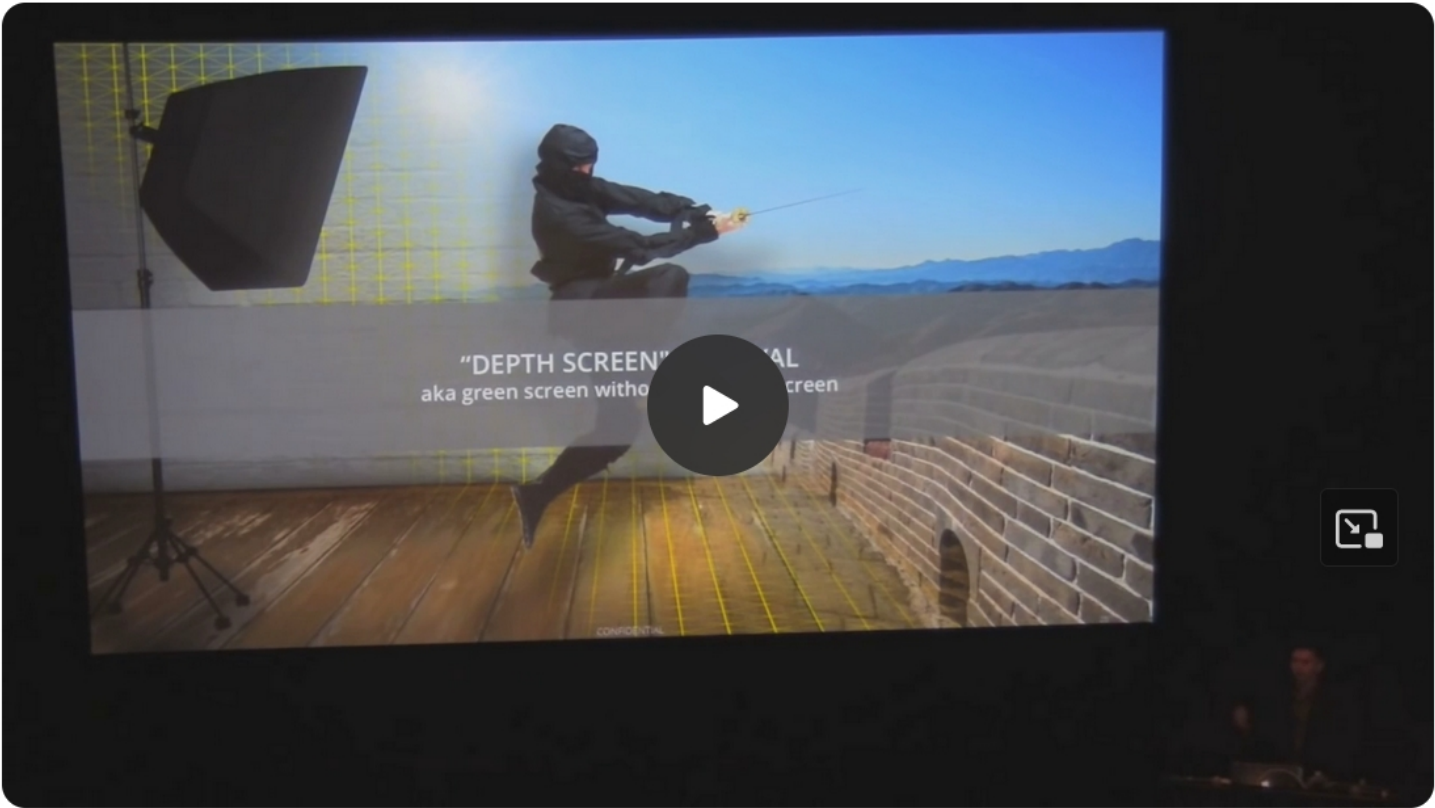
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## Detailed Analysis of Video 4:

Light Field Imaging: The Future of VR-AR-MR- Part 4: Jon Karafin

[https://www.youtube.com/watch?v=\\_PVok9nUxME](https://www.youtube.com/watch?v=_PVok9nUxME)



Custom analysis video is available for viewing at:

[MattGuertin.Substack.com/p/visual-effects-society-fraud](http://MattGuertin.Substack.com/p/visual-effects-society-fraud)

## Key Themes and Technical Aspects:

### Light Field Technology and Surface Interaction:

- Jon Karafin's presentation focuses on light field technology, emphasizing its application in capturing and understanding surface interactions with light. He discusses the use of different lighting conditions and sensing technologies integrated into light field capture to achieve a more accurate understanding of surfaces.

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**Dynamic Range and Signal to Noise Ratio in Cinematography:**

- He highlights the importance of dynamic range and signal-to-noise ratio in cinematography, especially in light field photography. Karafin points out the challenges in achieving high-quality imagery with computational photography and the need for careful consideration of fundamental imaging principles.

**High Frame Rate and Resolution Challenges:**

- The discussion includes the technical challenges of achieving high frame rates and resolutions necessary for high-quality cinema content in light field technology. Karafin touches on the need for super-resolution techniques to overcome these challenges.

**Data Management and Streaming:**

- A significant part of the presentation deals with managing the vast amount of data generated by light field cameras. Karafin discusses the challenges of streaming and compressing this data for end-user consumption and the role of cloud infrastructure in future implementations.

**Creative Flexibility and Future of Content Creation:**

- Karafin emphasizes the importance of providing content creators with full creative flexibility using light field technology. He envisions a future where advanced cloud infrastructure will allow end consumers to experience the full potential of light field content.

**Narrative and Targeting the InfiniSet Patent:**

**Light Field and Realistic VR Environments:**

- Karafin's focus on light field technology aligns with the InfiniSet patent's objective of creating realistic virtual environments. Light field technology's ability to capture detailed surface interactions enhances the realism in VR, similar to the treadmill system in the InfiniSet patent, which aims to simulate realistic physical movement in VR.

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High-Quality Imaging and Movement Simulation:

- The emphasis on achieving high dynamic range and resolving resolution challenges in light field imaging complements the InfiniSet patent's goal of creating high-quality, immersive VR experiences. The integration of advanced imaging techniques with physical movement simulation (as with the treadmill) is crucial for a comprehensive VR experience.

Data Handling for Enhanced User Experience:

- The discussion on managing large volumes of data and streaming challenges directly relates to the InfiniSet patent's application in VR. Efficient data handling and streaming are essential for delivering a seamless VR experience where users can walk and explore virtual environments realistically, as facilitated by the treadmill technology.

Conclusion:

- In this fourth video of the series, Jon Karafin's insights into light field technology, its challenges, and its potential for future content creation align closely with the patented InfiniSet technology's goal of creating immersive and interactive virtual environments. The narrative suggests an advanced approach to VR, where cutting-edge imaging technology and data management play key roles in enhancing user experience, complementing the physical movement simulation provided by the treadmill in the InfiniSet patent.

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**"You will own nothing and be happy" includes all of your intellectual property as well.***Matt Guertin*[MattGuertin.Substack.com/p/you-will-own-nothing-and-be-happy](http://MattGuertin.Substack.com/p/you-will-own-nothing-and-be-happy)

It's worth mentioning once again that I have always been willing to outright sell my intellectual property - as in the same people, companies, and entities currently involved in this massive criminal conspiracy could've just approached me and paid me what would've amounted to pocket change for them...literally. They are happy. I am happy. Everyone is happy. We go our separate ways and I am left alone to live my life in peace.

Instead they continue forward with doubling and tripling down - all the while they are continuing to manipulate the court system in Hennepin County to literally try to have me locked away in a mental institution after they scared the living shit out of me (there is a decent chance that was the entire goal of their 'mission') just as I had gotten to the point that I was about to paint my ceiling black and had my working prototype ready - which they knew all about via my 'former CIA' welder I just happened to get connected with.

The [US Army](#), [US Air Force](#), [State Department](#), [DARPA](#), [Defense Intelligence Agency](#), [US Indo Pacific Command](#), [USC](#), [Lockheed Martin](#), [KBR Inc](#), [Forcepoint](#), [3Gimbals](#), and on....and on....and on.....ALL repeatedly searching for my LinkedIn that still isn't even finished or setup currently and which I wasn't even on the entire time.

Think about how much money is involved in all of this yet they have all made the choice that they would rather turn my entire life into a fucking nightmare instead of just paying me for what I invented and calling it a day. That is the most mind boggling part of this entire situation. It means they are evil. It means they most likely find pleasure in what they are doing as what other explanation could there possibly be for making the conscious decision to actively try to destroy a persons life by stealing something they have dedicated their entire life to while at the same time actively working to try and have the same person committed to a mental institution through completely deceptive 'tricks' and shady tactics being carried out within the courts?

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How much more obvious and clear does the fraud need to become before something is done? The entire US Government essentially knows what is going on by now. [Amy Klobuchar knows what is going on](#). I filed a fraud report with the [FTC](#), [FBI](#), and [SFO](#). I've filed two separate [police reports](#). I contacted the [US Secret Service](#). It really would appear that the entire system itself insofar as the 'rule of law' is just as much of an illusion as Paul Debevec's entire life.

If you are reading this and you are not one of the criminals involved in helping to carry all of this out please share this with other people and help spread the word.

It's all being unveiled....but will anyone actually see it?..... or care?

[The period of time between](#) thinking up [the idea for InfiniSet in Feb of 2021](#) and my entire life intentionally being derailed in late 2022 was one of the most exciting adventures in my life thus far. Even currently in the midst of this completely surreal adventure I have been forced to partake in I am still doing pretty good, all things considered.

Stressful? YES.

Definitely.

All I want is to get my life back....the one that these obviously insane people seem hell bent on destroying through any means possible.

More to come...stay tuned.

~Matt

[www.MattGuertin.com](http://www.MattGuertin.com)

[Rumble.com/user/MattGuertin](https://Rumble.com/user/MattGuertin)

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